

# **MS24-8**

*CNC multi-spindle automatic lathe  
for high-productivity manufacturing*

# INDEX



*better.parts.faster.*

## INDEX CNC multi-spindle automatic lathe: More productive with eight spindles!

With the totally configurable INDEX MS24-8, we offer a machine concept that meets all requirements and the most stringent demands.

Eight main spindles, up to two swiveling synchronous spindles, and up to 16 tool carriers, which can be configured in XYZ, enable high-productivity manufacturing.

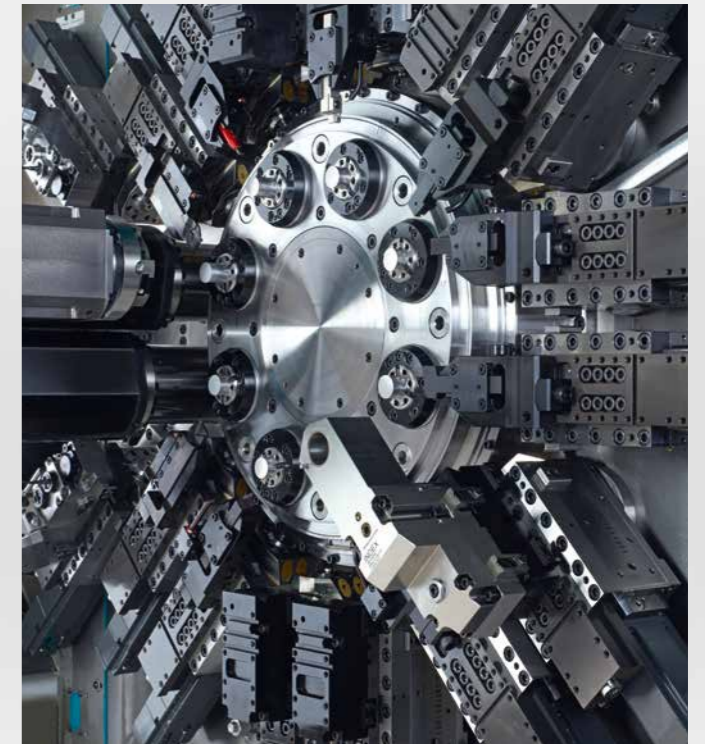
All aspects of the INDEX MS24-8 were developed for use of state-of-the-art manufacturing technologies.

Generously dimensioned and freely accessible, the working area minimizes setup cost especially for changeovers.

Unhindered chip fall is ensured even at full tooling.



**Designed to meet precise user requirements—the concept behind the INDEX MS24-8**



### Machine concept

- Freely accessible working area, making setup particularly easy
- Highly-dynamic slide with sliding guide (X axis)
- Quick machine setup with INDEX W-serration
- Non-wearing Z axis due to quills with hydrostatic support
- Front-opening machine for bar machining
- Chucked part machining
- Directed part discharge through linear handling
- Extremely fast swiveling synchronous spindles with C axis
- Swing arm is locked by three-piece Hirth coupling in machining position, ensuring maximum rigidity
- Maximum of six tools for rear-end machining per swiveling synchronous spindle

## The core: it's original when it originates from INDEX

### Our hallmark: the spindle drum

The compact spindle drum ensures maximum precision in each and every position through the use of a three-piece Hirth coupling. The core is composed of the eight fluid-cooled motorized spindles integrated in the spindle drum. An infinitely variable speed range, high tractive force, compact design, low maintenance, and the latest synchronous drive technology—these are the criteria that make an INDEX CNC multi-spindle automatic lathe stand out.

### Independent speeds

During machining, it is always possible to program the optimum speed, which can still be varied during cutting, for each spindle position and each cutting edge of the tool. The results are optimum chipping, maximum surface quality, short production times per piece, and extended tool life. You can also machine high-strength materials that up to now were hardly suitable for multi-spindle machines. It is also possible to make speed changes during drum indexing, thus avoiding any additional secondary processing times.

### More than just turning

INDEX CNC multi-spindle automatic lathes with live tooling, C axis, and Y axis give you access to entirely new processes, such as:

- off-center drilling and thread cutting
- inclined bores
- cross drilling
- contour milling
- hobbing (tooth cutting)
- polygon turning
- power skiving
- polylobe turning
- high-speed whirling



## The tool holders

### Manufacture with short cycle and setup times

Each cross slide now has the patented INDEX W-serration, which makes  $\mu\text{m}$ -accurate alignment of the tool holder easier and prevents its misalignment. The operator can preset the tool holder externally and place it on the slide. Thanks to plug & play, the holder is changed in just half the time.



## Optimized setup

- The INDEX CenterMaster significantly simplifies centering of drill holders and ensures short setup times.
- With the INDEX ClampMaster, you can precisely determine your clamping forces to optimize your manufacturing process in terms of safety and energy requirements.
- Your machines will be even more productive if they are operated by well-trained personnel: make use of our training courses. Now also online!
- Our team of experienced INDEX application technicians is ready to assist you with setting up or converting your production process on your machine.



## Precise, fast, and flexible

**Versatility is the strength of the INDEX MS24-8. Whether complex parts or different processes are involved—anything is possible**

- A maximum of 16 tool carriers with one or two travel axes
- Y axis (optional)
- One or two swiveling synchronous spindles
- Variable use of tool carriers for internal and external machining
- Use of several tools per tool carrier possible
- Cross machining with live tools
- C axis and polygon turning for extended use options

**Even more possibilities for rear-end machining with a swiveling synchronous spindle**

- Up to six tools, three of which are live
- Fast swiveling motion and hydraulic locking of the swiveling synchronous spindle via a Hirth coupling
- Efficient chip fall, as machining takes place outside the main working area
- Numerous possibilities using live tools in conjunction with C- and Y-axes as well as an electronic shaft

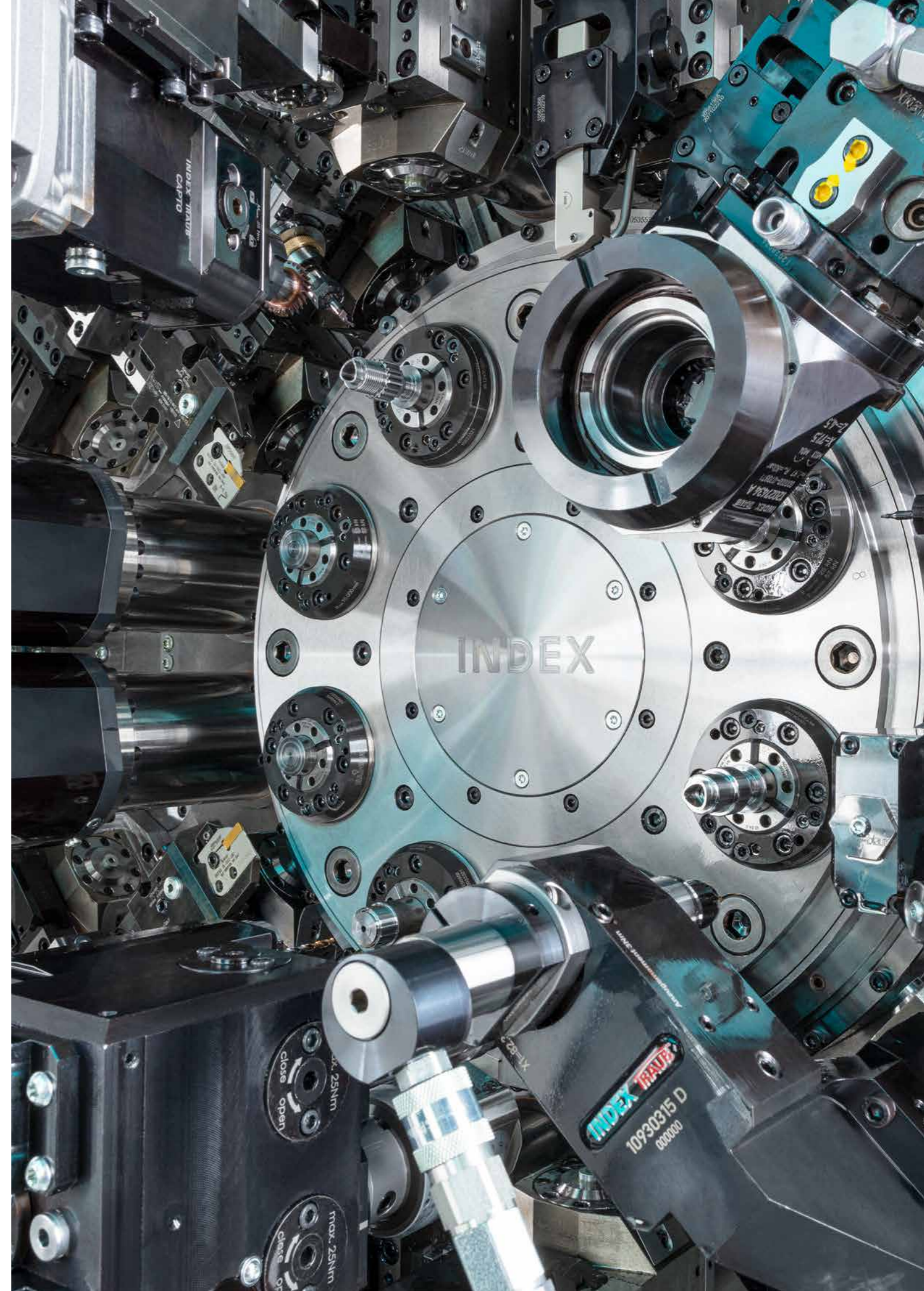
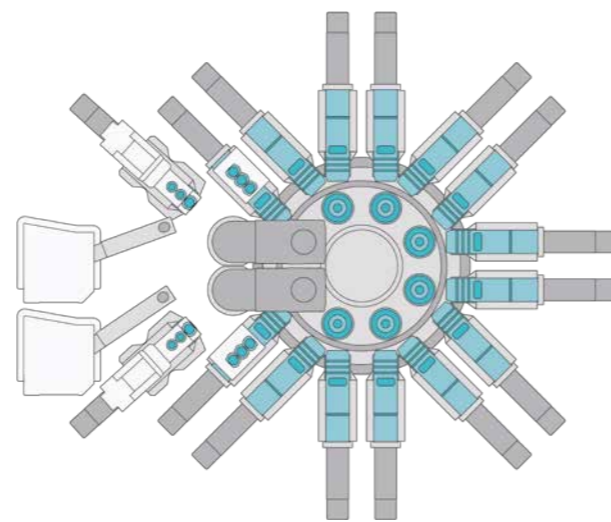
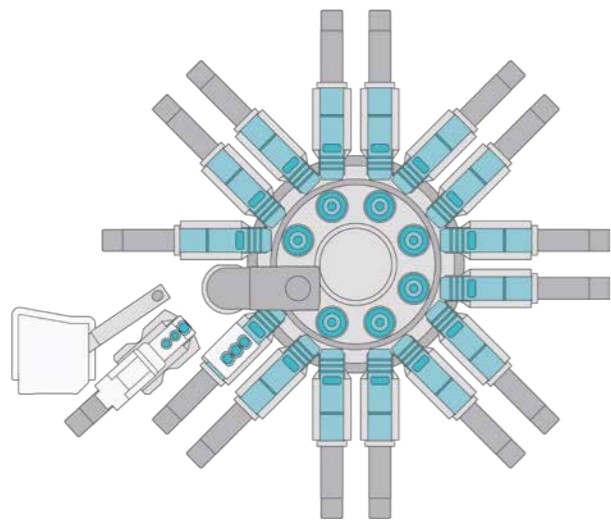
**The double four-spindle machine—an interesting upgrade option**

- Additional part production time reduction due to simultaneous manufacturing of 2 workpieces
- 14 tool carriers with one or two axes (optionally also Y axis)
- Two swiveling synchronous spindles
- Two back-boring slides (option)
- Rear-end machining up to six tools, three of which are live, per synchronous spindle

**With the same configuration level as an eight-spindle machine with simultaneous rear end machining in two spindle positions**

- Front-end machining on eight main spindles
- Simultaneous cutoff-side machining on two swiveling synchronous spindles

**Advantage:** Reduced cycle time with time-determining rear-end machining





## Simply more possibilities

### The working area—virtually limitless machining options for each spindle position

The tool carrier arrangement in the work area, without longitudinal sliding block, allows more than one tool to be used on each spindle. The possible machining operations are thus limited only by the tool holder. As a result, you can specify all production steps in all spindle positions.

Another advantage: Chips can fall freely.

### Performance, as we understand it

Maximum productivity and cost-effectiveness of multi-spindle automatic lathes, combined with the precision and flexibility of CNC single-spindle lathes, is the formula for success of the INDEX MS24-8 multi-spindle automatic lathes.

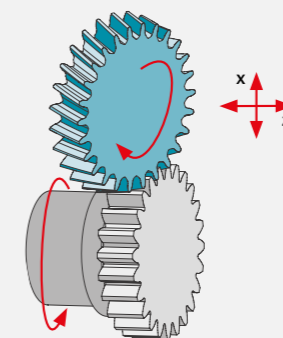
**Machining examples**

1. External turning – Internal turning
2. External turning – External turning
3. Externally live – Internally live
4. External turning – Internally live (sequential)
5. Externally live – Internal turning (sequential)
6. Externally live – External turning (sequential)

## For the most diverse technologies

### Power skiving, hobbing

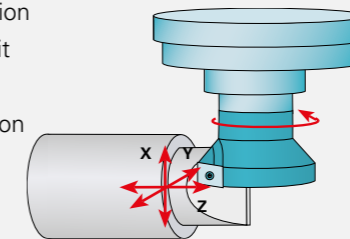
- Straight, helical, external, and internal toothing
- Coupled with electronic precision
- Maximum stability
- Toothing in correct position relative to other surfaces or shaped elements
- Greater tool service life as a result of shifting (hobbing only)



### Milling

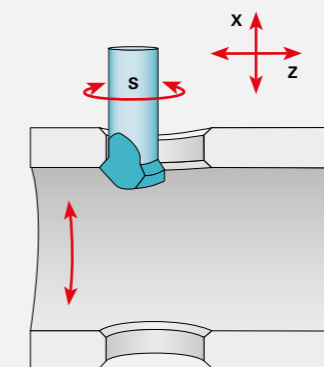
Milling with live tool in the following variants

- Side milling cutter in conjunction with C axis operation (transmit function)
- End milling cutter in conjunction with Y axis operation
- Plunge milling (graphic)



### Elliptical deburring of cross-drill holes

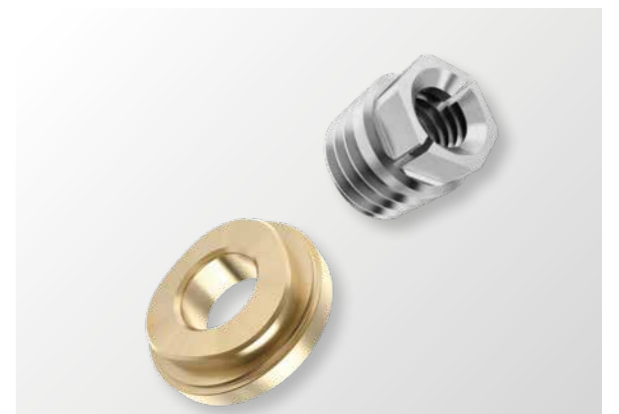
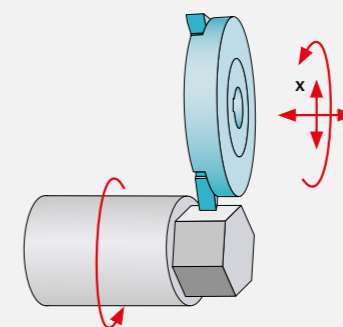
Uniform deburring (even chip removal) of cross-drill holes based on interpolation of the C axis, X axis, and Z axis with live tool.



### Multi-edge turning, polylobe turning

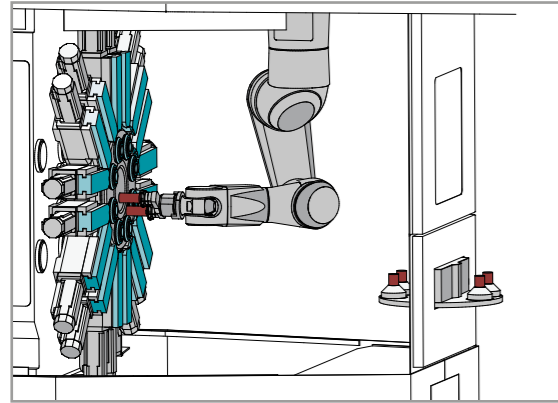
is possible in longitudinal and grooving processes, even in high-alloy materials

- Example: hexagonal turning
- $i=2:1$ , referring to the speed ratio of the cutter head to the workpiece
- Inner and outer polygons in acc. with DIN 3689-1 possible



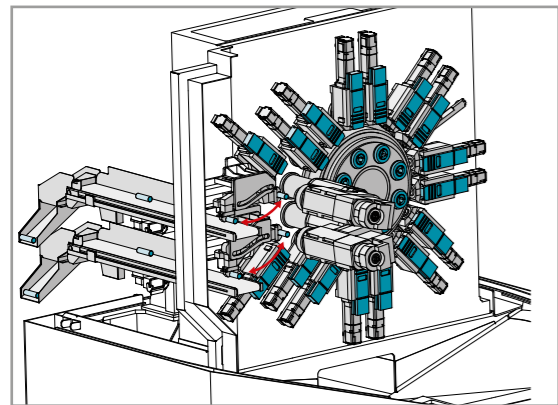


## Workpiece handling systems



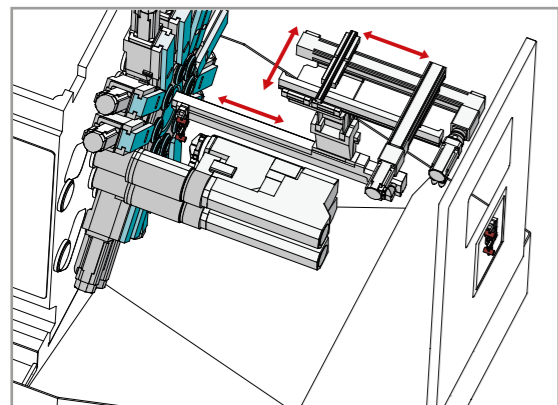
### Parts feed and removal by a six-axis robot via the swivel disk interface to the external handling system

The workpiece handling system for chuck parts and bar segments can be used for eight-spindle machining with and without synchronous spindle, as well as for double four-spindle machining. A 4x OP10 (first side) and 4x OP20 (second side) variant, with external turning station, is also available.



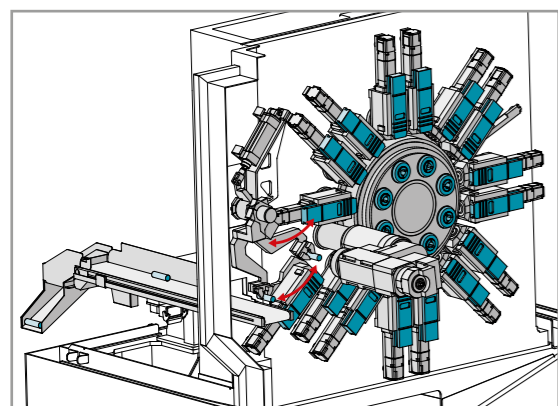
### Directed workpiece removal from synchronous spindles onto the internal conveyor belt

Axially-directed discharge via gripper from the synchronous spindles in positions 7 and 8, to the internal conveyor belt for parts that may not be ejected.



### Directed workpiece removal via synchronous spindle to directed workpiece removal from the synchronous spindle and linear shuttle

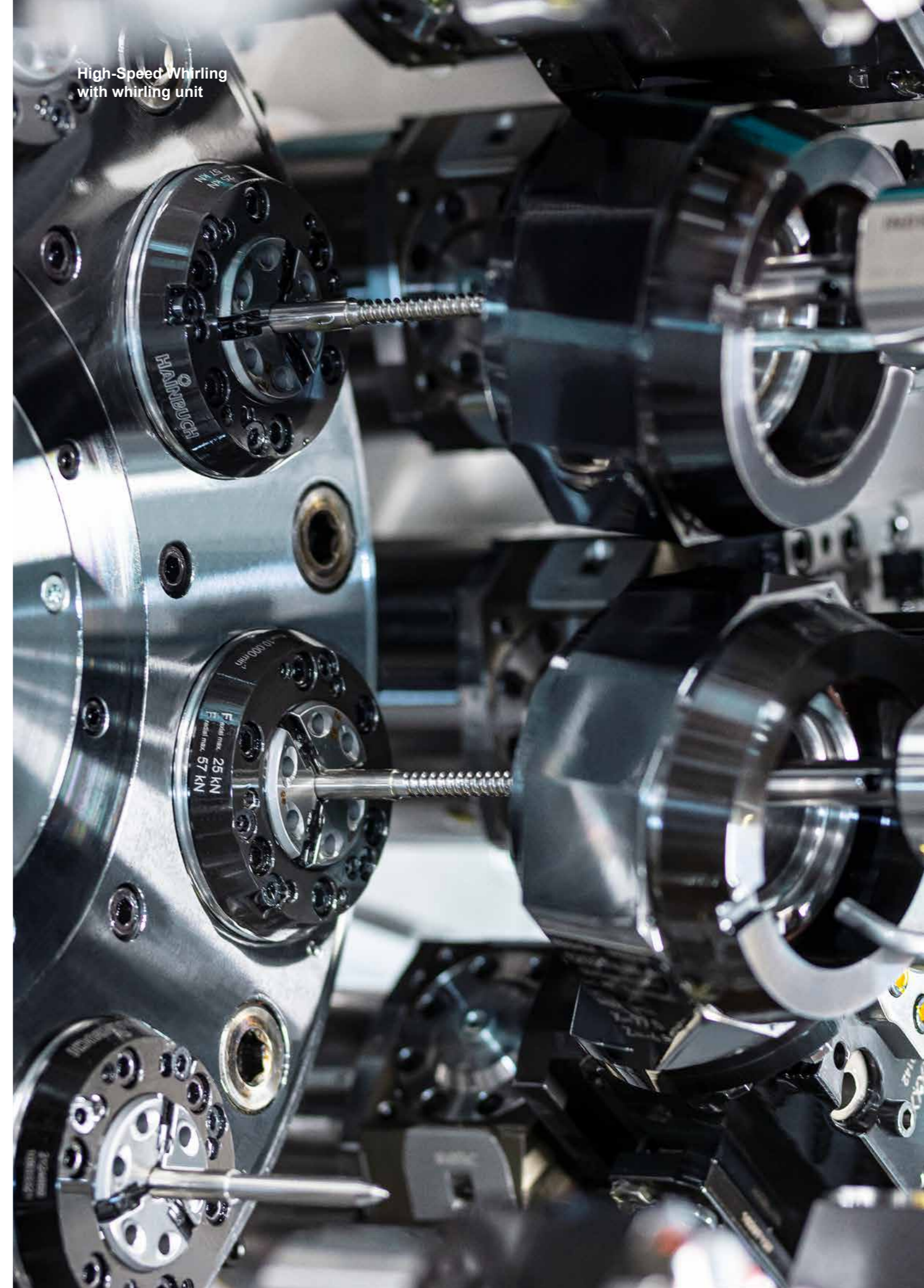
Damage-free and position-oriented delivery of components from the synchronous spindle in positions 8 and 7, or position 8, to the external handling system at the front of the machine. All three axes of the machine-integrated handling system are NC-controlled.



### Directed workpiece removal from the synchronous spindle in spindle position 8

Axially-directed discharge by gripper from the synchronous spindle in position 8 to the internal conveyor belt for parts that may not be ejected.

Undirected workpiece removal via a parts chute is possible.







## The cockpit for easy integration of the machine in your business organization.



### Focus on production and control—Industry 4.0 included

The iXpanel operating concept provides access to networked production. With iXpanel, your staff always has all relevant information for efficient production right at the machine. iXpanel is already included in the standard and can be individually extended. You can use iXpanel just as you require it for your business organization—that's Industry 4.0 tailored to suit your needs.

### Future-proof

iXpanel integrates the latest control generation SIEMENS S840D sl. Use iXpanel intuitively via an 18.5" touchscreen monitor.



### Productive.

Maximum machine performance by optimally tuned processes in machine cycles with easily understandable user screens. In addition, technology cycles for frequently recurring machining operations and safe machine operation and also for optimum machining quality.

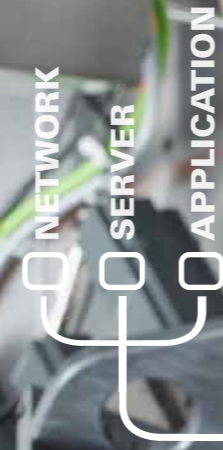
### Intelligent

The machine always starts with the control home screen. Other functions can be displayed on a second screen at any time, and operators can enjoy direct, activity-related assistance with the standard version, such as workpiece drawings, setup lists, programming aids, documentation, etc., and all this right at the machine.

### Virtual & open

With the optional VPC box (industrial PC), iXpanel not only opens up the world of Virtual Machine and of simulation directly at the control (VM on Board). Thanks to the VPC box (option), the machine can also be integrated easily and fully into IT networks and structures. You determine what additional applications are used on the VPC box.

[index-werke.de/ixpanel](http://index-werke.de/ixpanel)



18,5" TOUCHSCREEN MONITOR

### STANDARD included as standard

- Job documents
- Customer data
- Workpiece counter
- Production status
- Drawings
- Setup sheet
- Notes
- Information center
- Maintenance & care
- User management
- Technology computer
- Programming help

+ many more standard features

### OPTION

- VPC Box
- Virtual machine 3D simulation
- VirtualPro Programming studio
- Custom applications



## Technical data

<b>Working spindles</b>		<b>8</b>
Max. bar diameter	mm	24
Speed *	rpm	10000
Power (at 100%/25% duty cycle)	kW	8.7/15
Torque (at 100%/25% duty cycle)	Nm	10/18

<b>Tool carrier</b>		<b>16</b>
Slide travel X	mm	62
Slide travel Z	mm	85
Slide travel Y	mm	+/-13

<b>Synchronous spindle</b>		<b>1/2</b>
Max. clamping diameter	mm	24
Speed *	rpm	10000
Power (at 100%/40% duty cycle)	kW	9.2/12
Torque (at 100%/40% duty cycle)	Nm	11/14
Synchronous spindle swivel angle	degrees	174 (168)
Slide travel Z	mm	140
Number of tools for rear-end machining		3/6

<b>Optional back-boring slide</b>		
Tool carriers for rear-end machining		1/2
Slide travel X	mm	62
Number of tools for rear-end machining		3/6
of which live		2/4

<b>Dimensions, weight, and connected power</b> (for maximum configuration level, without bar guide or loading magazine)		
Mass	kg	approx. 7,300
Length	mm	3287
Width	mm	2107
Height	mm	2,854
Connected power **		73 kW, 87 kVA, 125 A, 400 V, 50 Hz/460-480 V, 60 Hz

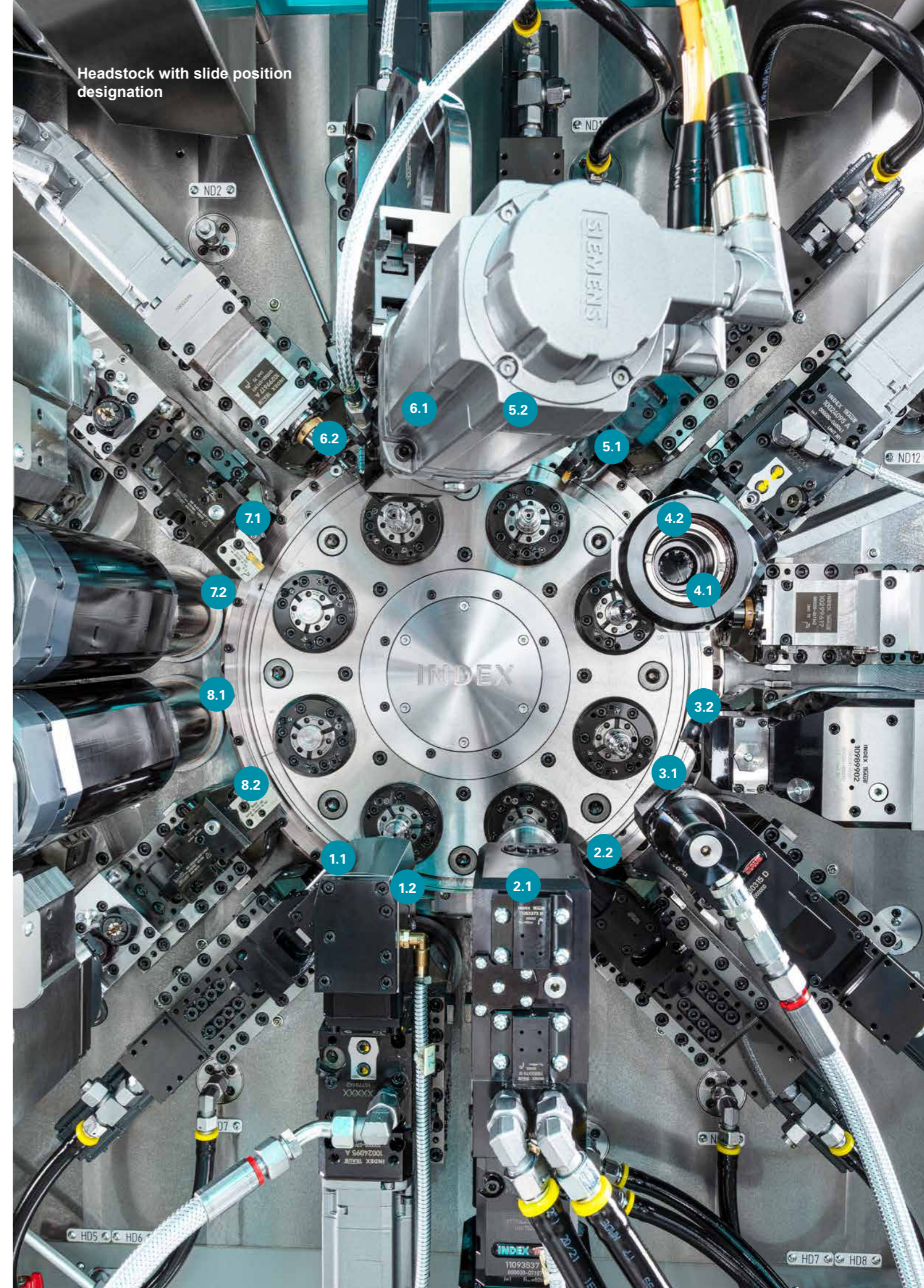
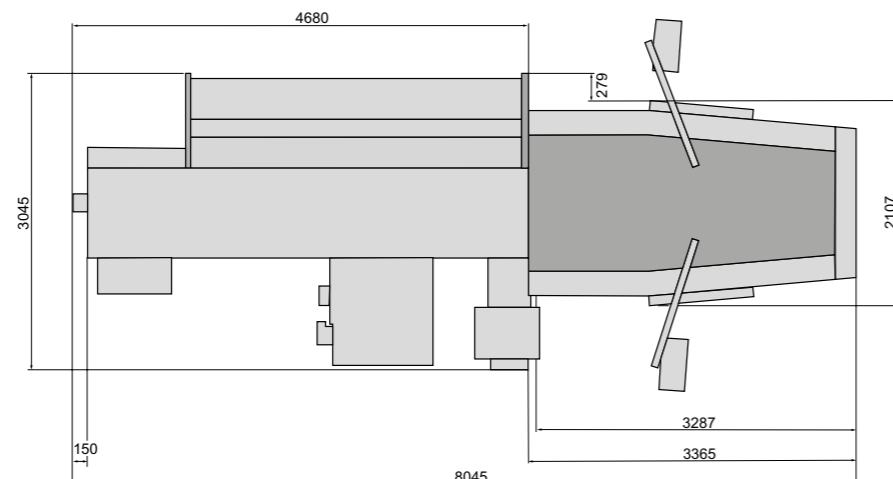
<b>Control</b>	Siemens Sinumerik 840D Solution Line
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<b>Options</b>	Polygon turning, gear hobbing, tool monitoring, Y axis, transmit function
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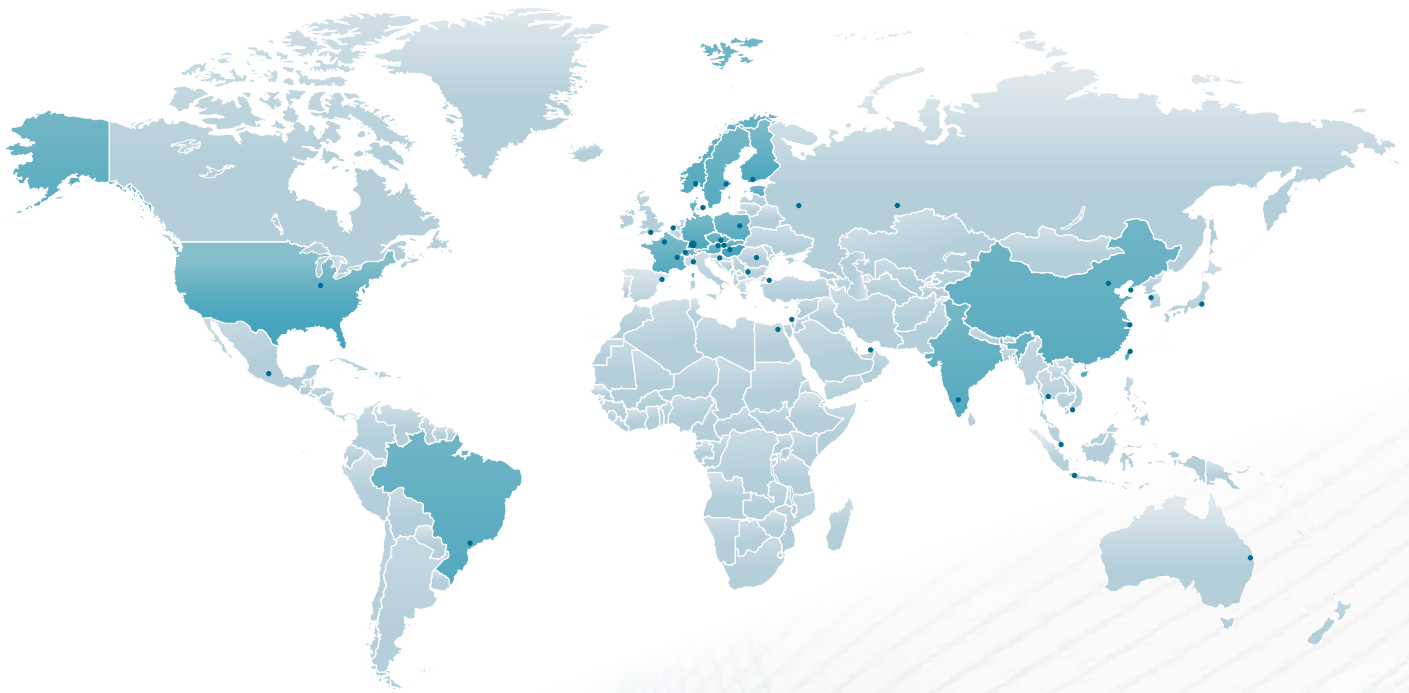
\* Speed limitations are necessary, depending on bar diameter, bar guide, and workpiece clamping

\*\* Dependent on I/O devices

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