

MultiLine MS16C

CNC Multi Spindle
Turning Machines



CNC multi-spindle machine: More dynamics, less secondary times!

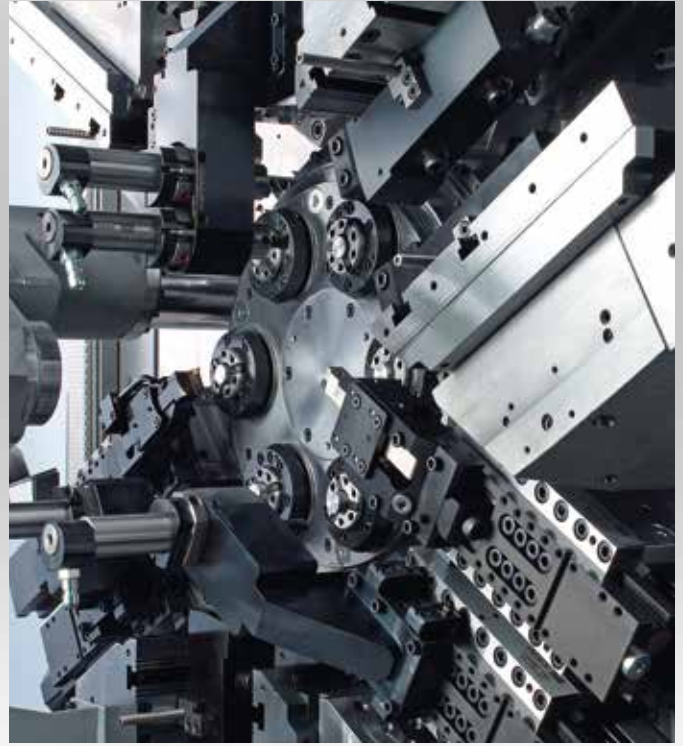
The MS16C combines the flexibility of modern INDEX CNC multi-spindle technology with the familiar productivity of cam-controlled machines. With 5 extremely rigid CNC grooving slides, optionally also drilling slides instead of grooving slides, and further machining slides with X- and Z-axes, almost all geometries and machining tasks can be managed with the ease of an ultra-modern open-front INDEX CNC

multi-spindle machine.

Shortest possible changeovers, ultra-high dynamics and lowest secondary times are the basis of minimal cost per part.



**Open front, flexible and productive –
the machine design of the MS16C**



Extremely high power density for maximum production output with minimum footprint

- Freely accessible and setup-friendly work area
- Grooving or drilling slide for maximum cutting performance with minimum machining time
- Quick tool setup by INDEX W-serration
- Spindle drum with individual drives of the work spindles
- Cross-slide for flexible complete machining
- CNC cutoff slide with extended stroke for rear end machining
- Spindle-integrated bar feed during drum indexing for even shorter cycle times
- Max. 2 highly dynamic synchronous spindles with extremely short acceleration and deceleration times

Optional

- Cut-off slid and separate rear machining slide

The core – top precision from INDEX

Our trade mark – the spindle drum

The compact spindle drum ensures maximum precision in each position through the use of a three-piece Hirth coupling. The core is composed of 6 fluid-cooled motorized spindles integrated in the spindle drum. An infinitely variable speed range, high torque, high thermal stability, small compact design, and maintenance-free operation- those are the criteria by which you recognize an INDEX CNC multi-spindle machine.

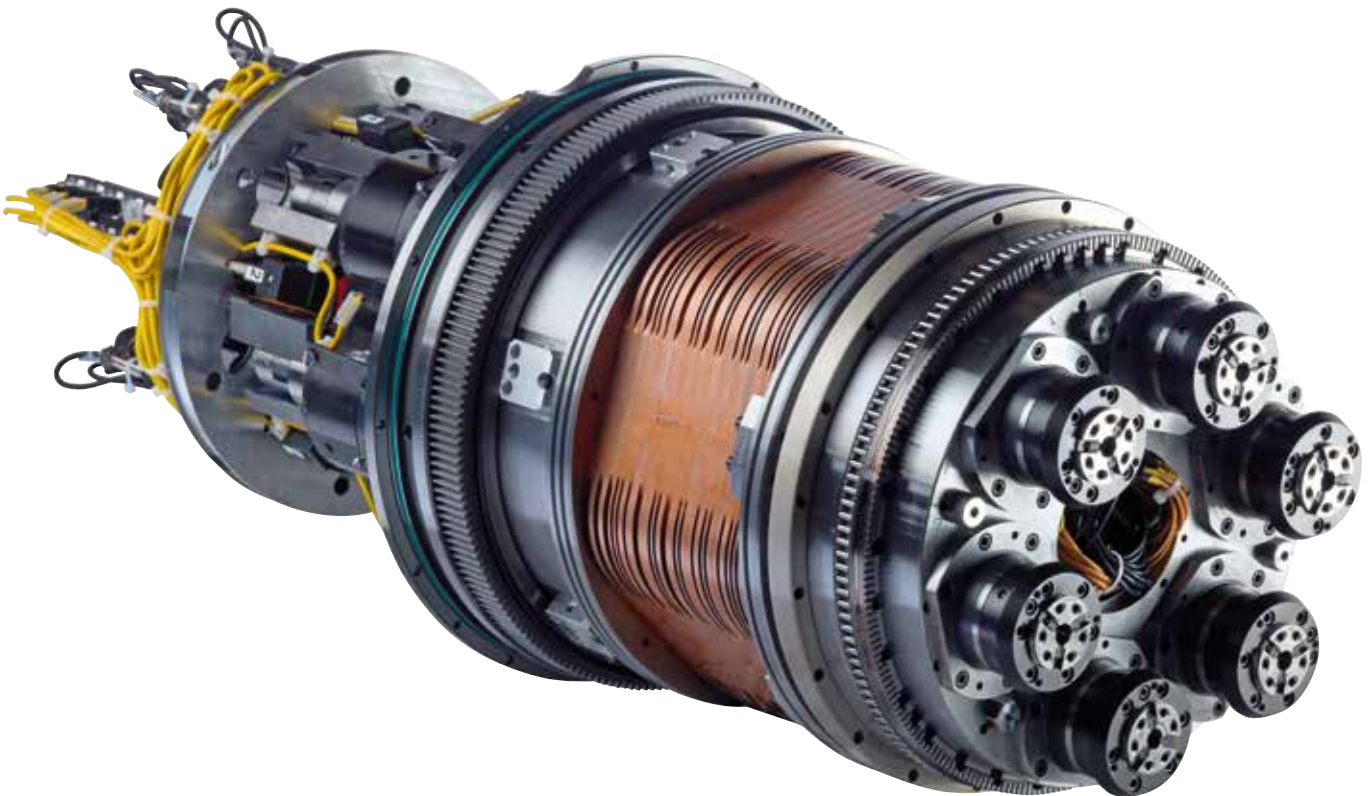
Independent speeds

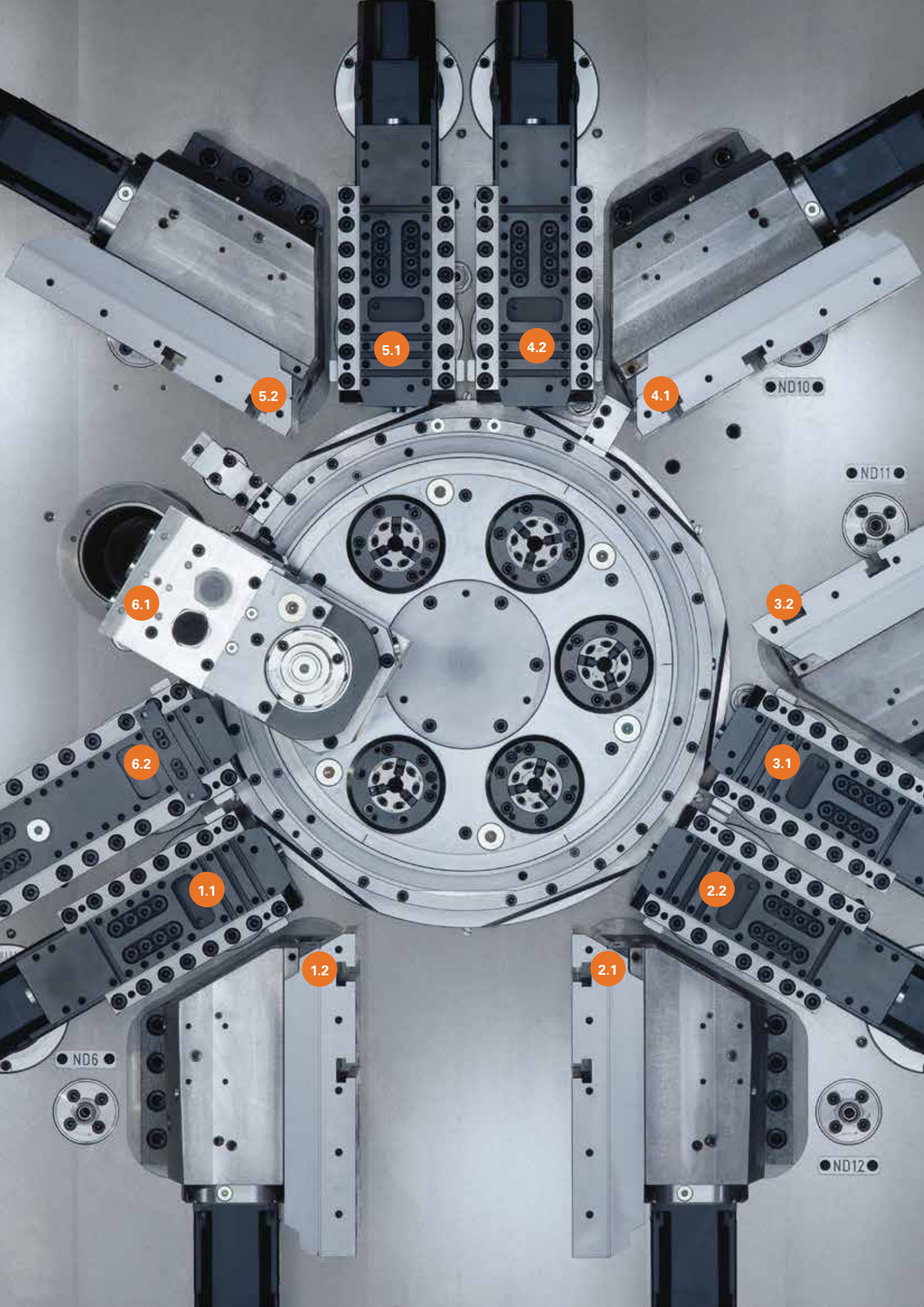
During machining, the optimal speed, which can still be varied during cutting, can always be programmed for each spindle position and each cutting edge of the tool. The result is better chipping, maximum surface quality, short part production times, and longer tool service life. You can also machine high-strength materials that up to now were hardly suitable especially for cam-controlled 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 machines with live tools and C-axes give you access to entirely new processes, such as:

- Off-center drilling and thread cutting
- Inclined drilling
- Cross drilling
- Contour milling
- Multi-edge turning





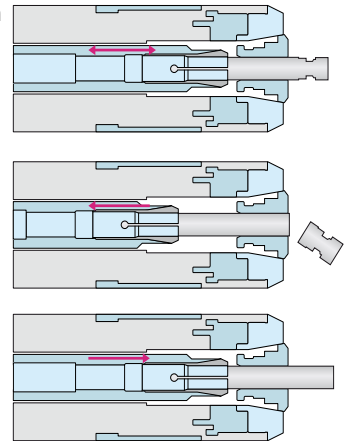
Amazingly fast, impressively flexible



With dynamics and numerous machining options at low unit cost

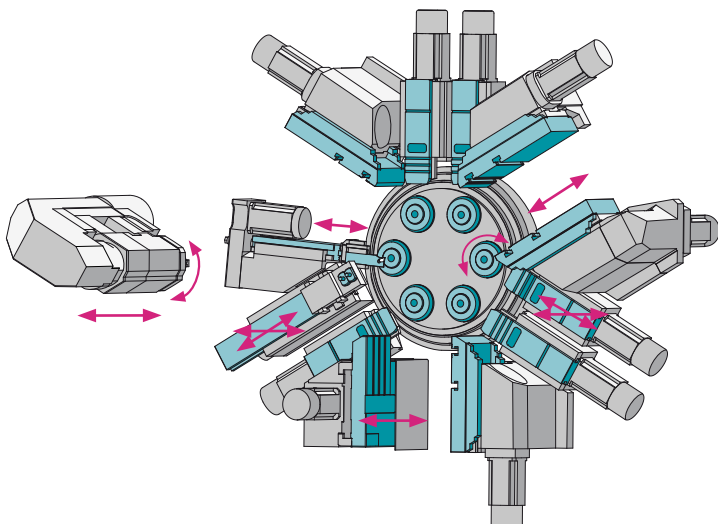
- A maximum of 12 tool carriers with 1 or 2 travel axes
- Max. 2 fast synchronous spindles for rear end machining
- Several tools per cross-slide possible
- Variable use of tool carriers, internal-external, stationary or driven
- C-axis machining possible in every spindle position
- Polygon turning and other machining options

Integrated bar feeder for even shorter cycle times



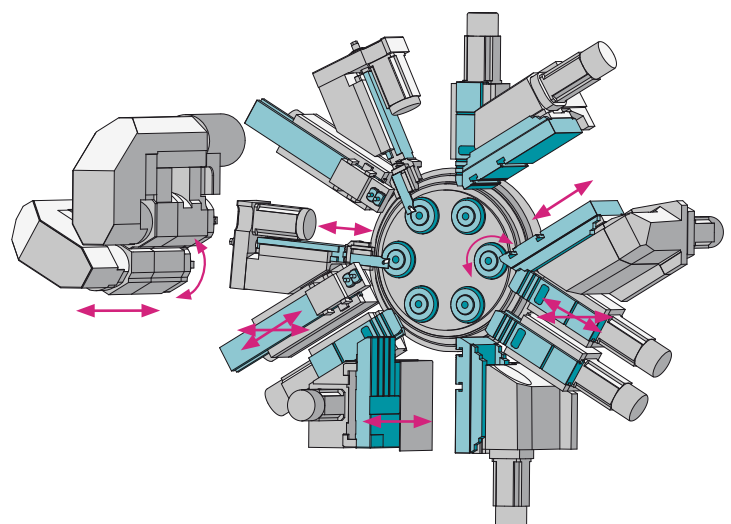
Configuration as a single synchronized machine

- Synchronized spindle in position 6.1
- Cutoff and rear end machining slide in position 6.2
- Grooving or drilling slide
1x selectable per spindle position (1 to 5)
- Extension version with separate cutoff slide 6.0 and pure rear end machining slide 6.2
- Cross slide 1x per spindle position (1 to 5 selectable)



Configuration as a double synchronized machine

- Synchronized spindle in position 5.1/6.1
- Cutoff and rear end machining slide in position 5.2/6.2
- Grooving or drilling slide
1x selectable per spindle position (1 bis 4)
- Extension version with separate cutoff slide 5.0/6.0 pure rear end machining 5.2/6.2
- Cross slide 1x per spindle position (1 to 4 selectable)

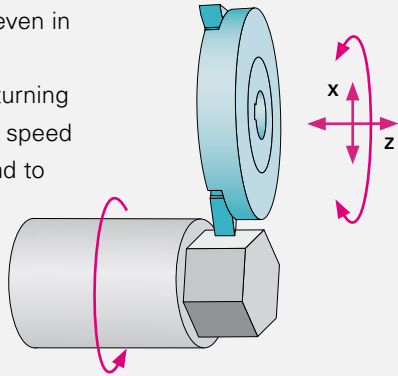


For various technologies

Polygonal turning

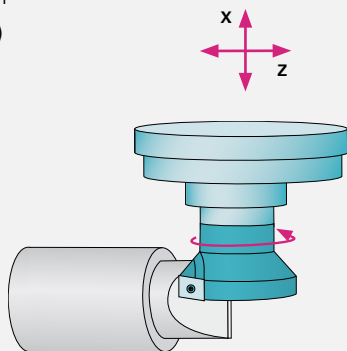
Polygonal turning is possible in longitudinal and grooving processes, even in high-alloy materials

Example: hexagonal turning $i=2:1$, referring to the speed ratio of the cutter head to the workpiece



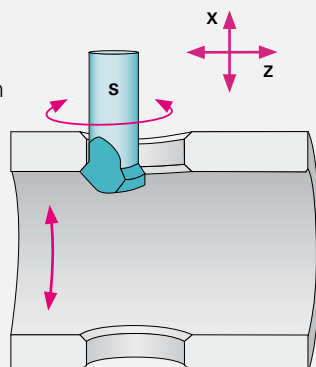
Milling

Milling with driven tool, also in conjunction with C-axis mode (Transmit)



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 driven tool.



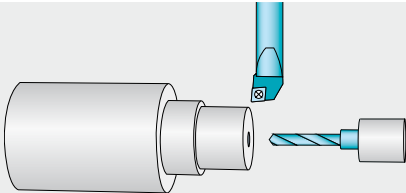
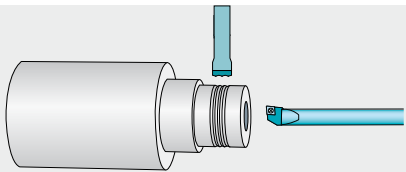
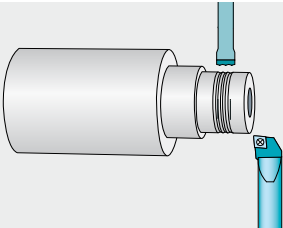
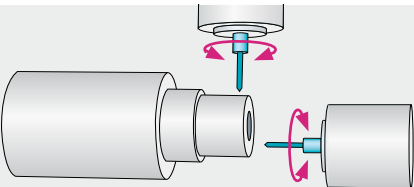
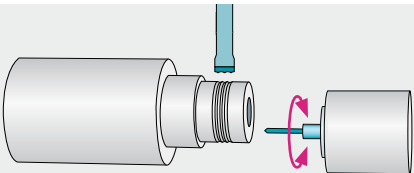
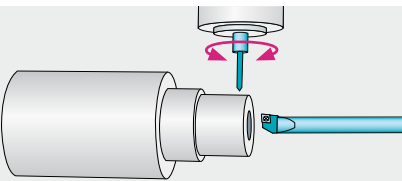
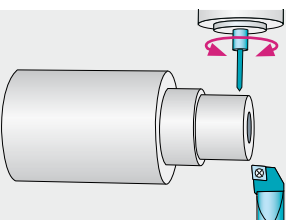
Simply more possibilities

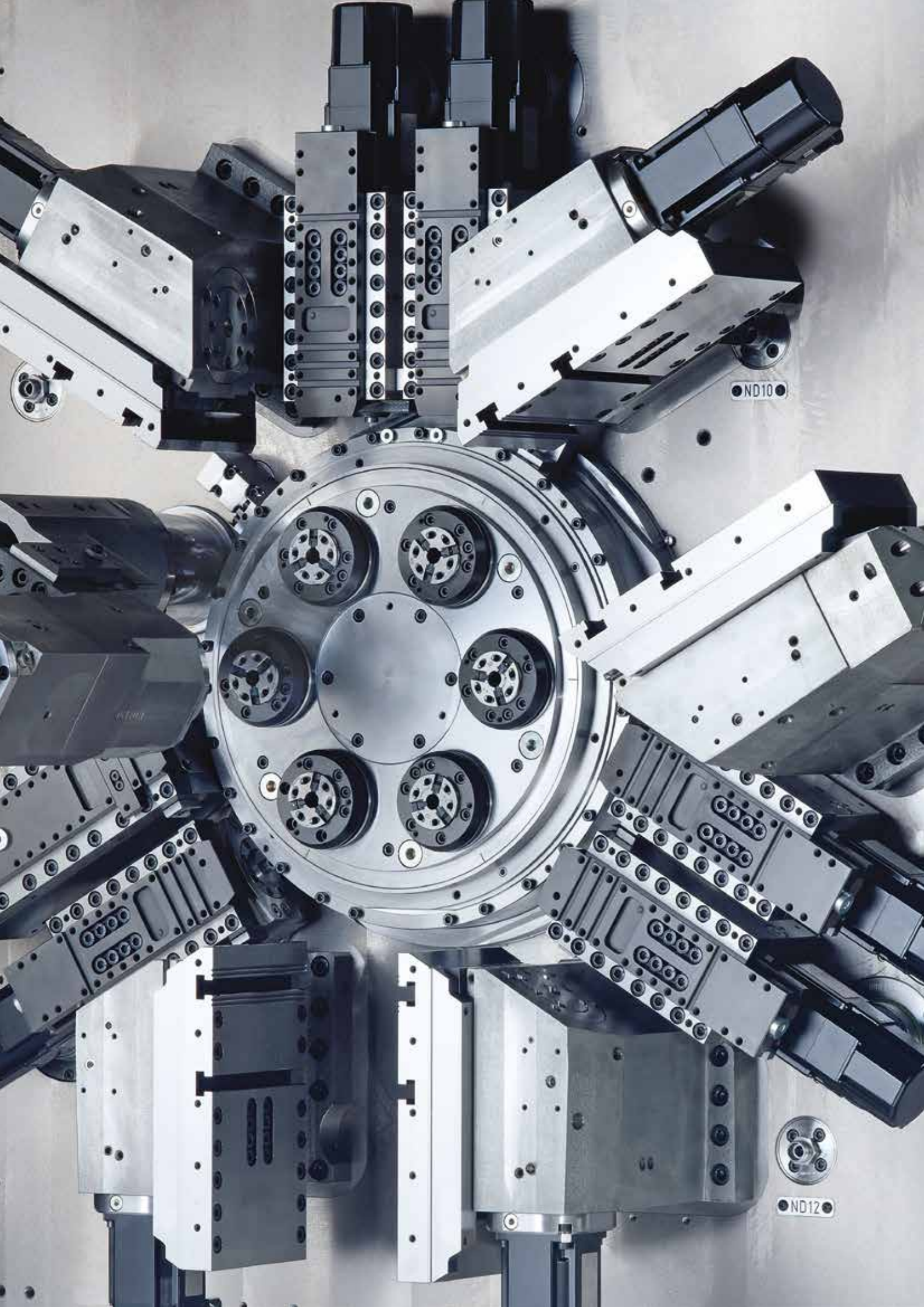
The work area—almost limitless machining capabilities in each spindle position

The tool carrier arrangement in the work area allows unrestricted use of several stationary or live tools – also for external machining – 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: unhindered chip flow.

Performance as we understand it

Maximum productivity and cost-effectiveness of multi-spindle machines, combined with the precision and flexibility of CNC single-spindle machines, is the formula for success of the MS16C multi-spindle machine.

Machining examples	
	1. External copy turning – Internal drilling
	2. External grooving – Internal turning
	3. External grooving – External turning
	4. Live radially – Live axially
	5. External grooving – Live axially (sequential)
	6. Live radially – Internal turning (sequential)
	7. Live radially – External turning (sequential)



ND10

ND12

Powerful and convenient control

New and optimized

The new INDEX C200 sl control is firmly committed to the new SIEMENS S840D Solution Line control and SIEMENS SINAMICS drives and therefore represents the highest level of performance and functionality.

This ensures future security and productivity!

Pioneering – The user interface

As standard equipment, has the INDEX MS16C a 43.5 cm screen with a full touch-sensitive surface. A touch of the finger now suffices to use softkeys directly on the screen to open files, folders and menu trees or to move entire pages on the screen.

Even switching the operating areas or enabling/disabling of block skip levels is now done simply by "finger pointing" on the screen.

Compatible

Despite the innovative technology, the new INDEX C200 sl control is compatible with the previous control in all key operating areas.

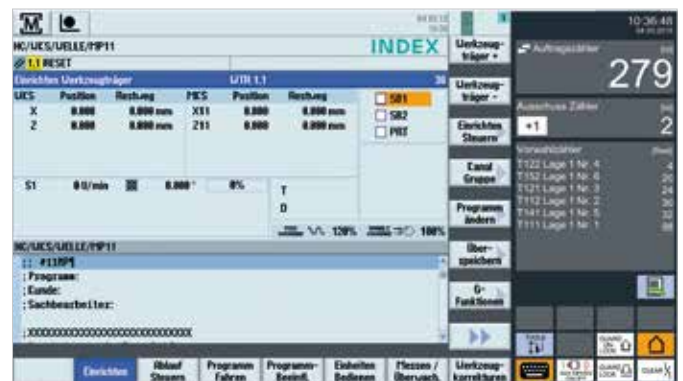
Innovative

In addition to the adoption of various selector switches directly into the touch-sensitive user interface on the screen, LED backlit control buttons and switches on the machine control panel are also part of the new control concept.

They are used by the control to actively indicate allowable movements or enabled switches to the operator – inadmissible movements and switches remain dark.

Actions expected by the operator are signaled by flashing keys!

In this way, the C200 sl control communicates directly with the operator!



Modern

- The latest editor for easy and fast programming
- Convenient display functions such as multi-editor, animated cycles, etc.
- Programming of mathematical functions, variables and workpiece counts
- The same functionality for turning, milling, drilling
- Easy network integration through control-integrated network technology
- Intelligent online help, detailed descriptions of error causes and remedies

Efficient

- Largely unchanged machine operation and key arrangement compared to the previous control (INDEX)
- Practical machine cycles support safe, time-effective and collision-free machine operation
- Internal calculation accuracy better than nano-interpolation (80 bit floating point arithmetic)
- All displays and operating inputs in clear text
- More than 20 foreign languages

Productive

- Latest control generation with maximum performance
- Full-fledged Y-axis/axes for drilling and milling
- Comprehensive technology cycles for error-free and optimal machining quality
- Free assignment and programming of additional drilling and milling units
- Fast and safe job change by automatic saving of setup data and automatic re-initialization at (re-)selection of the job

Safe

- Tool breakage monitoring from INDEX or, alternatively, from third parties (ARTIS) available (option)
- Safety Integrated Inside: Continuous safety monitoring and testing integrated in the control
- Post-process and in-process measurement possible (optional)
- INDEX Virtual Machine & VPro Programming Studio for off-machine programming, setup, optimizing on a PC (option)



Technical data

Working spindles		6
Max. bar diameter	mm	16
Speed *	rpm	10000
Power (at 100%/25%)	kW	8,7 / 15
Torque (at 100%/25%)	Nm	10 / 18
Integr. bar feed in position 6 and / or 1 / stroke	mm	70
Tool carrier / cross slide max.		5
Slide travel X	mm	45
Slide travel Z	mm	70
Tool carrier / cross slide max.		5
Slide travel X	mm	45
Tool carrier / drilling slide max.		5
Slide travel Z	mm	70
Tool carrier / cutoff slide max.		2
Slide travel X	mm	14
Tool carrier / cutoff and back-boring slide max.		2
Slide travel X	mm	94
Slide travel Z	mm	79
Number of tools for rear end machining / synchronous spindle		2
or		3, of which 2 are driven
Synchronous spindle max.		2
Max. clamping diameter	mm	16
Speed *	rpm	10000
Power (at 100%/40%)	kW	9,2 / 12
Torque (at 100%/40%)	Nm	11 / 14
Slide travel Z	mm	140
Dimensions, weight and connection values (for maximum configuration level, without bar guide or loading magazine)		
Weight	kg	approx. 5200
Length	mm	2599
Width	mm	1300
Height	mm	3044
Power consumption **		approx. 49 kW

Control

INDEX C200 sl (based on Siemens S840D sl) with teleservice feature, spindle stop, C-axis in standard scope

Options

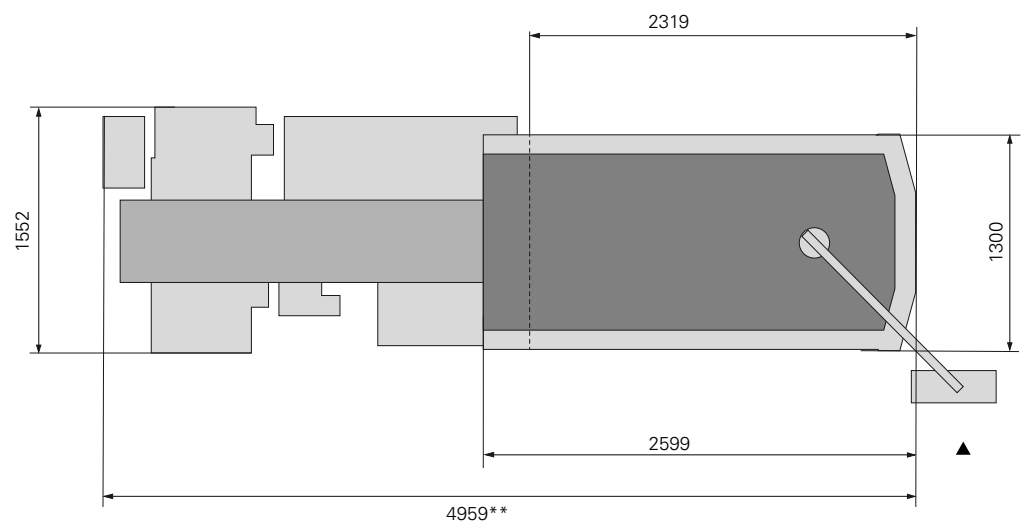
Multi-edge turning, tool monitoring, transmit function

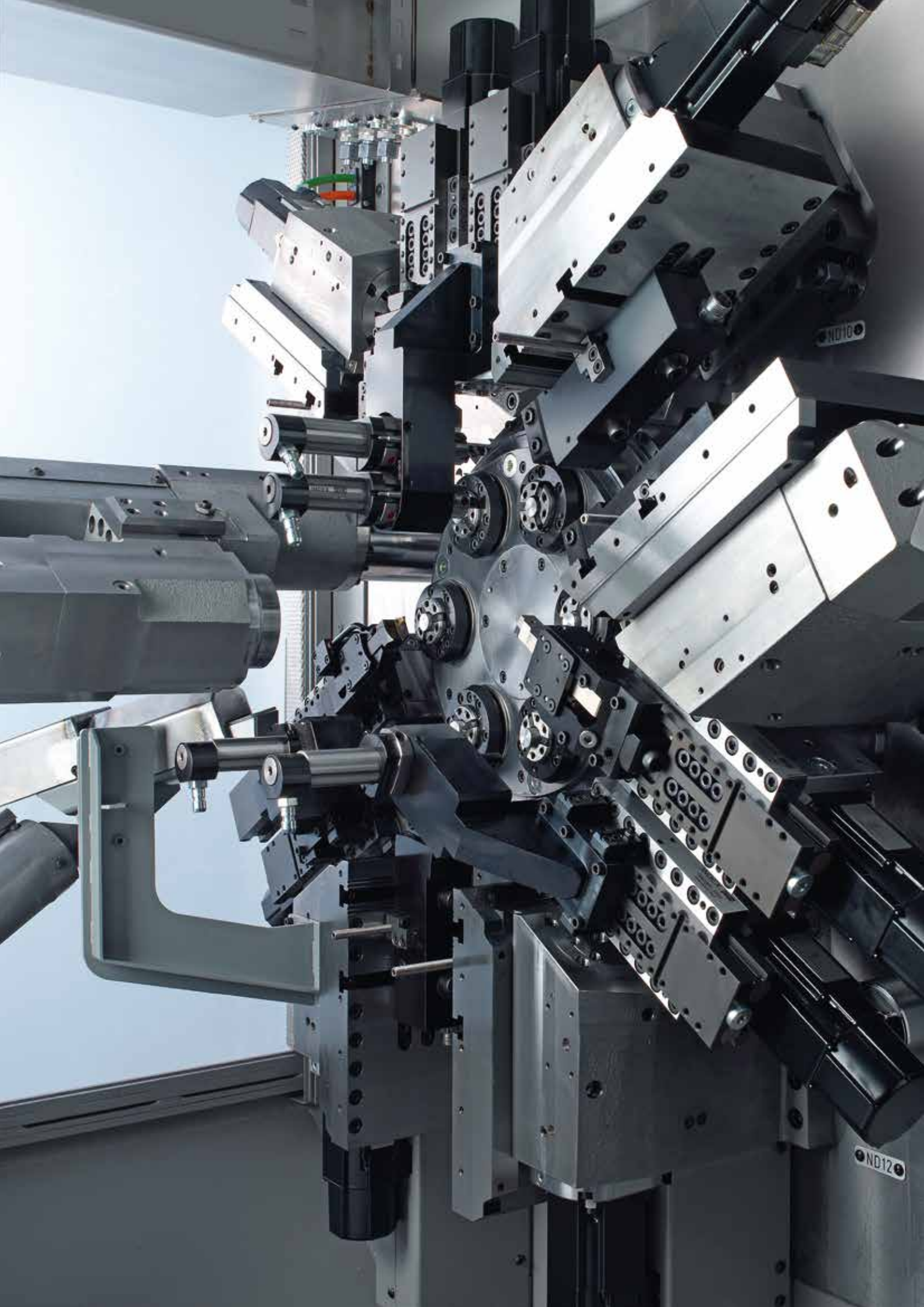
* Speed limitations are necessary, depending on bar diameter, bar guide, and workpiece clamping

** Dependent on I/O devices

MS16C

INDEX bar guide 3300





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