INDEX

MultiLine MS40C

CNC Multi Spindle Turning Machine

INDEX CNC multi-spindle machine: the standard!

With one model option fully configurable as desired, we offer you a machine concept that meets all requirements and the most stringent demands. 6 main spindles, up to 2 swiveling synchronous spindles enable unimagined manufacturing possibilities. The MS40 was consistently designed for the use of state-of-the-art manufacturing technologies. Generously dimensioned and freely accessible, the working area minimizes setup cost especially for changeovers. Unhindered chip flow is ensured even at full tooling.

Designed to meet precise user requirements – the concept behind the MS40C

Machine configuration

- Freely accessible working area and, thus, quite easy to set up
- Highly-dynamic slides with sliding guide (X-axis)
- Non-wearing Z-axis due to quills with hydrostatic support
- Front-opening machine for bar machining
- Chuck part machining with loading and unloading by robots or linear handling units
- 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 6 tools for rear end machining per swiveling synchronous spindle

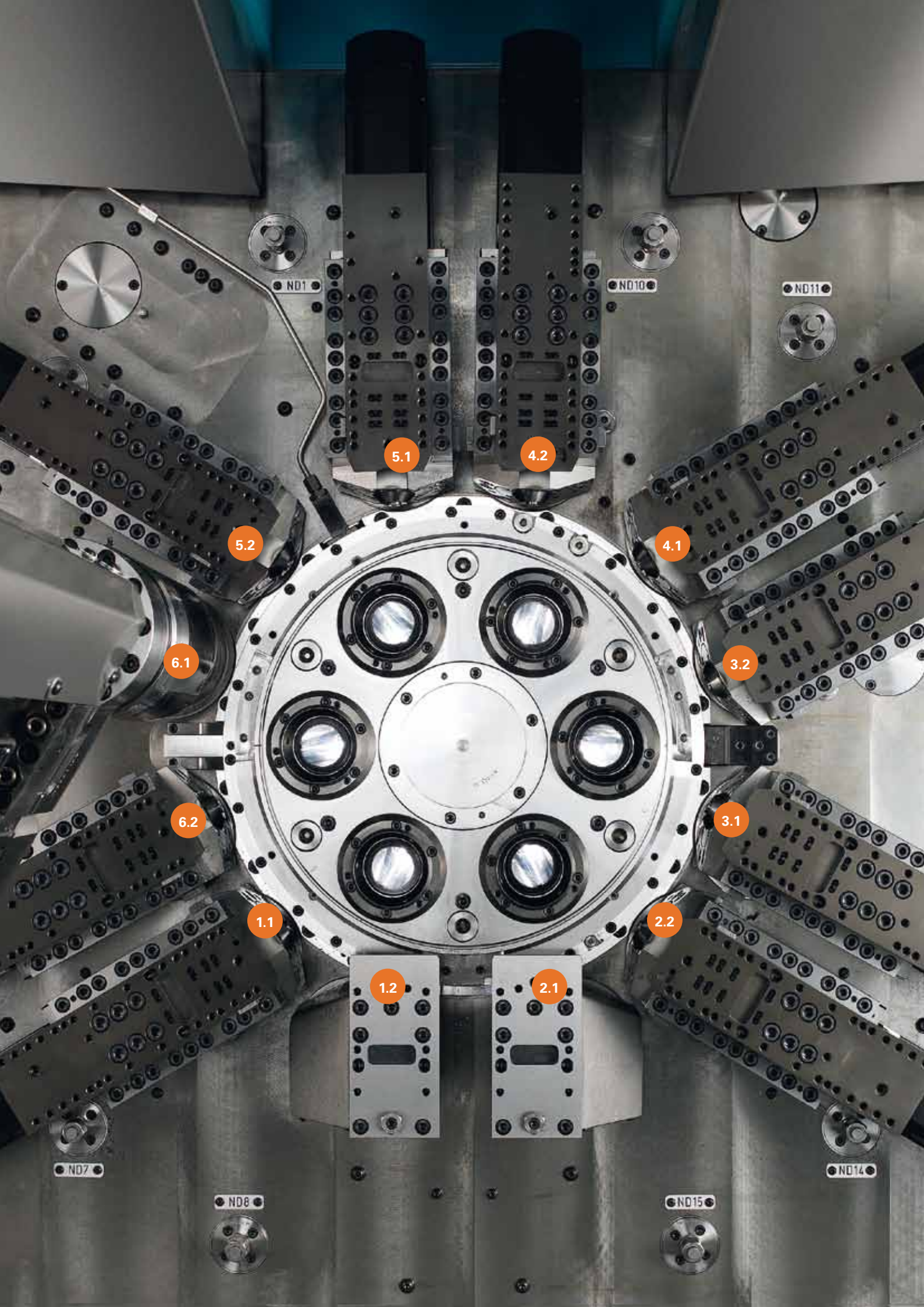
The core — top precision from INDEX

Our trade mark – the spindle drum
The compact spindle drum ensures maximum precision in each position through the use of a Hirth coupling. The core is composed of 6 fluid-cooled motorized spindles integrated in the spindle drum. Infinitely variable speed control, high torque, small frame size, maintenance-free operation and advanced synchronous technology – these are the criteria defining 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 for multi-spindle machines. It is 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 driven tools, C-axis, and Y-axis give you access to entirely new processes, such as:

- Off-center drilling and threading
- Inclined drilling
- Cross drilling
- Contour milling
- Gear hobbing
- Polygon turning
- Use of fixed and driven turrets with up to 3 tools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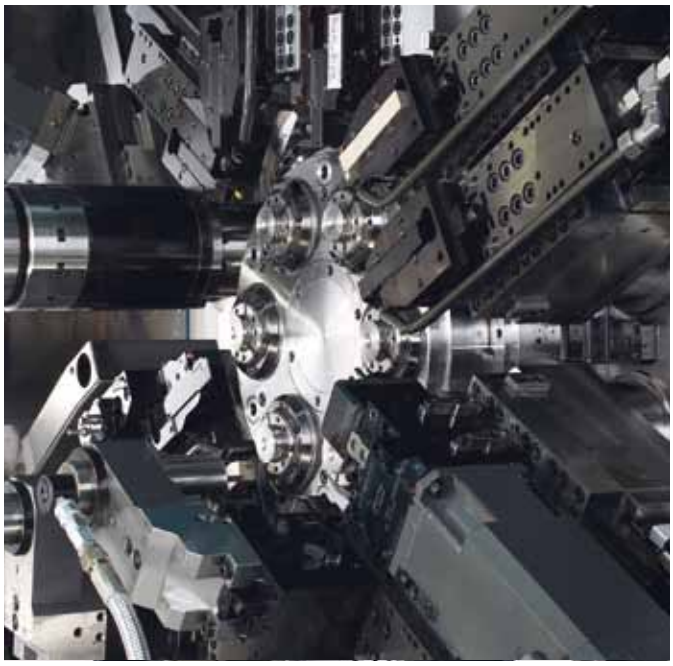
Precise, fast, and flexible

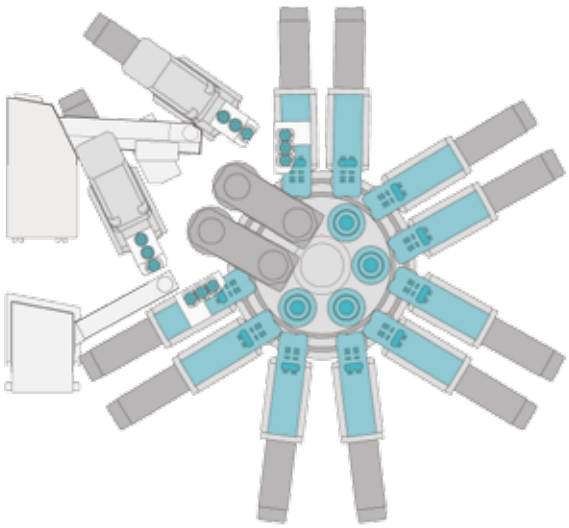


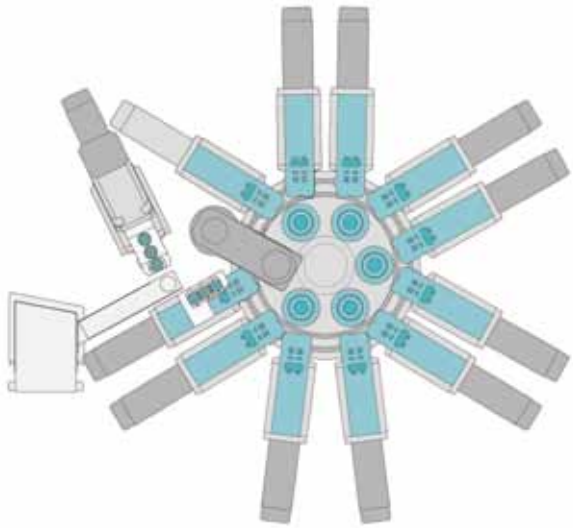
The versatility of the MS40C is its strength. Whether complex parts or different processes are involved—anything is possible

- A maximum of 12 tool carriers with 1 or 2 travel axes
- Y-axis (optional)
- 1 or 2 synchronous spindles
- Variable use of tool carriers for internal and external machining
- Use of several tools per tool carrier possible
- Transverse machining with live tools
- C-axis and polygon turning for extended applications

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

- Up to 6 tools, of which 2 are driven
- Fast swiveling motion and hydraulic locking of the swiveling synchronous spindle by means of a Hirth coupling
- Free chip fall, as machining takes place outside the main working area
- Numerous possibilities using driven tools in conjunction with C-axes and X-axes as well as an electronic shaft





The double three-spindle machine – an interesting configuration possibility

- Additional part production time reduction due to simultaneous manufacturing of 2 workpieces
- 10 tool carriers with 1 or 2 axes (optionally also Y-axis)
- 2 swiveling synchronous spindles
- 2 back-drilling slides with 3 tools each, of which up to 2 are driven

With the same configuration level as a 6-spindle machine with simultaneous backworking in two spindle positions

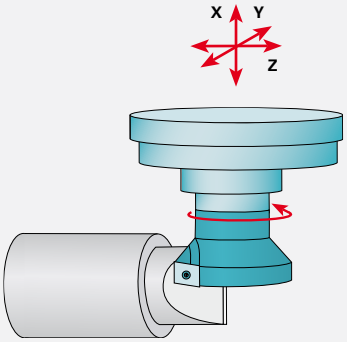
- Front end machining on 4 main spindles
- Simultaneous cutoff-side machining on 2 swiveling synchronous spindles

For various technologies

Milling

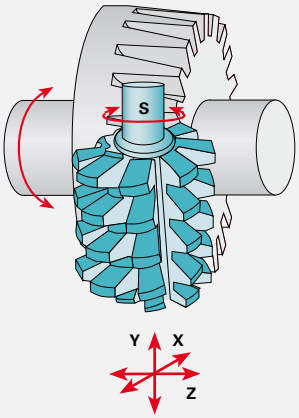
Milling using driven tools in the following versions

- Disk milling cutter in connection with C-axis operation (transmit function)
- End mill in connection with Y-axis operation
- Plunge milling (graphic)



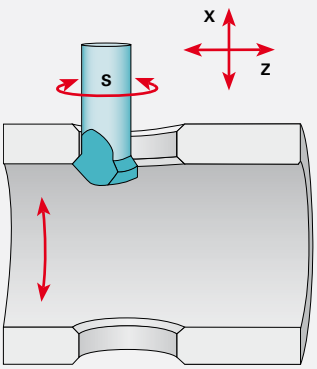
Gear cutting, gear hobbing

- Coupled with electronic shaft
- Maximum rigidity
- Positionally correct gearing with other surfaces or form elements
- Any desired angle offset can be programmed
- Higher tool life due to shifting of Y-axis



Elliptic deburring of transverse holes

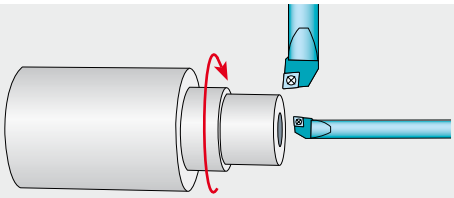
Uniform deburring (uniform chip removal) of transverse holes by interpolation of C-axis, X-axis and Z-axis with driven tool.



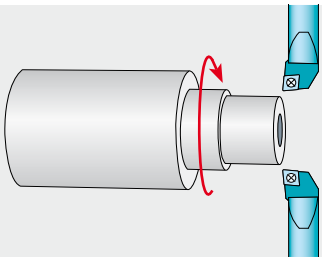
Simply more possibilities

The working area – almost limitless machining capabilities in each spindle position
The tool carrier arrangement in the working area without a 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:
You have an open flow of chips.

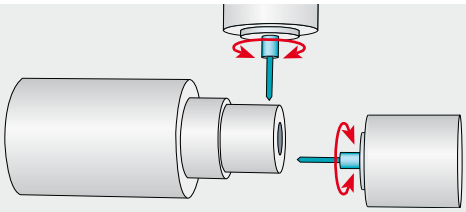
Performance as we understand it
Maximum productivity and cost-effectiveness of multi-spindle machines, combined with the precision and flexibility of CNC single-spindle machines, is the formula for success of the MS40C multi-spindle machine.



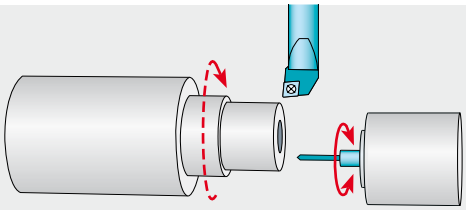
Machining examples
1. Turning O.D. – Turning I.D.



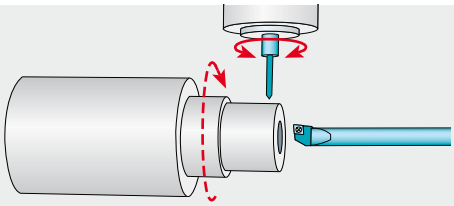
2. Turning O.D. – Turning O.D.



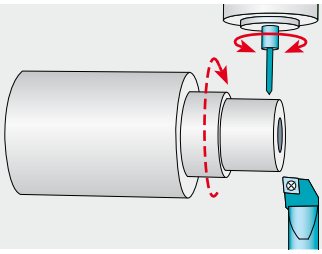
3. Driven tool outside – Driven tool inside



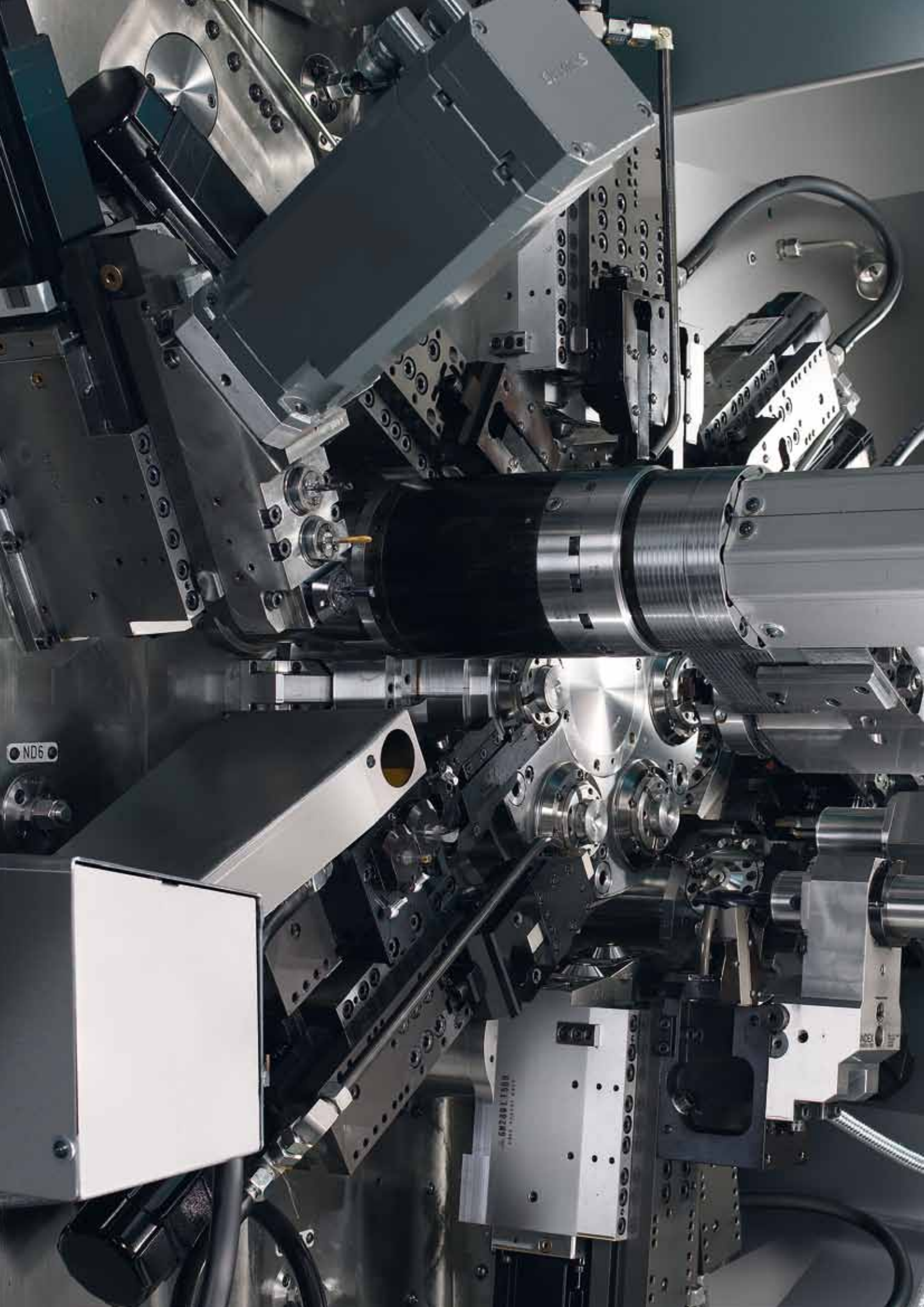
4. Turning O.D. – Driven tool inside (sequentially)



5. Driven tool outside – Turning I.D. (sequentially)



6. Driven tool outside – Turning O.D. (sequentially)


ND6

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 MS40C 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. And existing MS40C NC programs can be run in the new control as well.

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)


INDEX
Schaltung 60 Grad
Schaltung 30 Grad
Schaltung Soind. 1 in 1
Verriegeln
Entriegeln
Details ausblenden
Zurück
Position
Istwert
Sollwert
Container
Stellung genau
Auslastung
Betriebsart UHR'NG
Freigabe UHR'NG
TR1
180.0°
Einrichten
Ablauf Steuern
Programm Fahren
Programm-Beeinfl.
Einheiten Bedrgen
Messen / Überwach.
Werkzeug-korrekturen

Technical data

Work spindles		**6**
Max. bar capacity	mm (inch)	40 (1.6)
Speed❖	rpm	7000
Power (at 100% / 25%)	kW (hp)	13 / 24 (17.4 / 32.2)
Torque (at 100% / 25%)	Nm (ft lbs)	31 / 57 (22.9 / 42.1)

Headstock tool carriers	**max.**	**12**
Slide travel X	mm (inch)	73 (2.9)
Slide travel Z	mm (inch)	120 (4.7)
Slide travel Y	mm (inch)	42 (1.7)

Swiveling synchronous spindles	**max.**	**2**
Max. clamping diameter	mm (inch)	40 (1.6)
Speed $N_{max.}$	rpm	8000
Speed rated speed	rpm	6000
Power (at 100% / 40%) and rated speed	kW (hp)	10 / 14 (13.4 / 18.8)
Torque (at 100% / 40%) and rated speed	Nm (ft lbs)	16 / 22 (11.8 / 16.2)
Swiveling angle of synchronous spindle	degrees	144
Slide travel Z	mm (inch)	150 (5.9)
Max. number of tools for backworking		6

Back-drilling		
Tool carriers for backworking		1 / 2
Slide travel X	mm (inch)	82 (3.2)
Max. number of tools for backworking		3
of which driven		2

Dimensions, weights and connecting power (with max. configuration, without bar guide unit or loading magazine)		
Weight	kg (lbs)	approx. 7100 (15653)
Length	mm (inch)	3329 (131.1)
Width	mm (inch)	2032 (80)
Height	mm (inch)	2854 (112.4)
Connecting power		65 kW, 78 kVA, 110 A
A/C		400 V, 50/60 Hz

Control

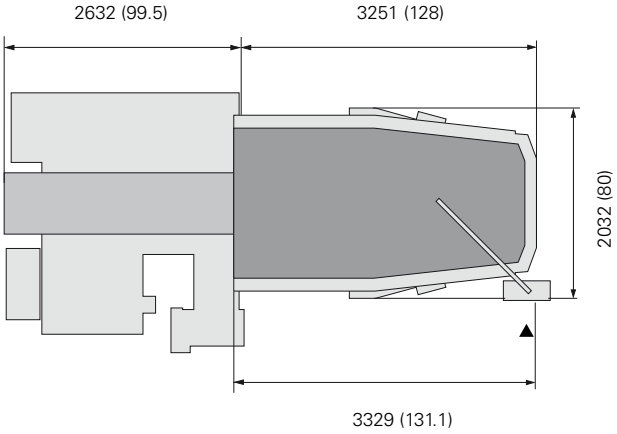
INDEX C200-SL (based on Siemens 840D solutionline) including teleservice, spindle stop, C axis included in standard package

Options

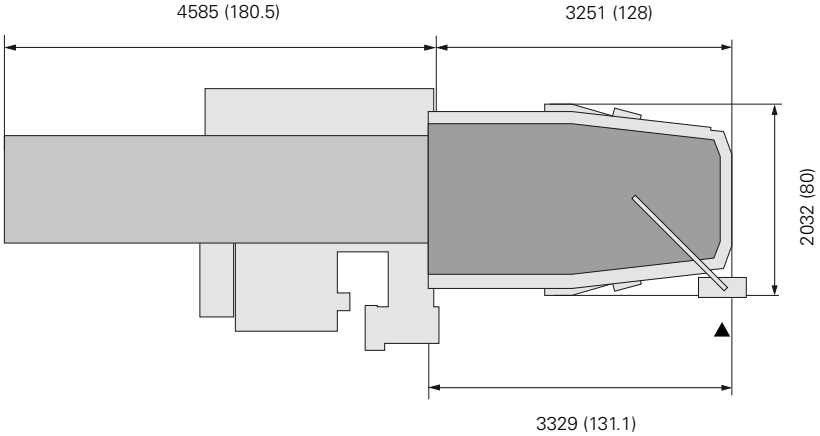
Polygon turning, gear hobbing, tool monitoring, Y axis, transmit function

❖Depending on the bar diameter, bar guide unit and part clamping, speed limits are necessary.

MS40C
INDEX bar guide 3300



MS40C
IEMCA loading magazine SIR 3300



INDEX

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