

MultiLine MS22C-8

CNC Multi Spindle
Turning Machine



Multi-spindle machines: More productive with 8 spindles!

With the totally configurable MS22C-8, we offer a machine concept that meets all requirements and the most stringent demands. 8 main spindles, up to 2

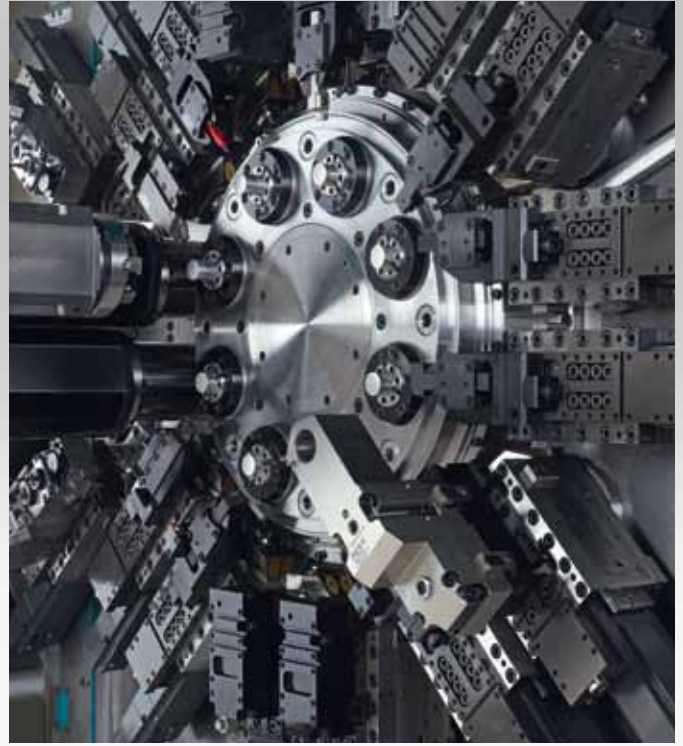
swiveling synchronous spindles, and up to 16 tool carriers, which can be configured in XYZ, enable high-productivity manufacturing. All aspects of the MS22C-8

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 flow is ensured even at full tooling.



**Designed to meet precisely
the user requirements—the
concept behind the MS22C-8**



Machine concept

- Freely accessible working area and, thus, extremely easy setup
- Highly-dynamic slides with sliding guide (X-axis)
- Non-wearing Z-axis due to quills with hydrostatic support
- Front-opening machine for bar machining
- Chucked part machining with loading and unloading by robots
- Directed part discharge through linear handling
- Extremely fast swiveling synchronous spindles with C-axis
- Swivel arm is locked in the machining position with a three-piece Hirth coupling, 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 three-piece Hirth coupling. The core is composed of 8 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, 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 result is ideal 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 also possible to make speed changes during drum indexing,

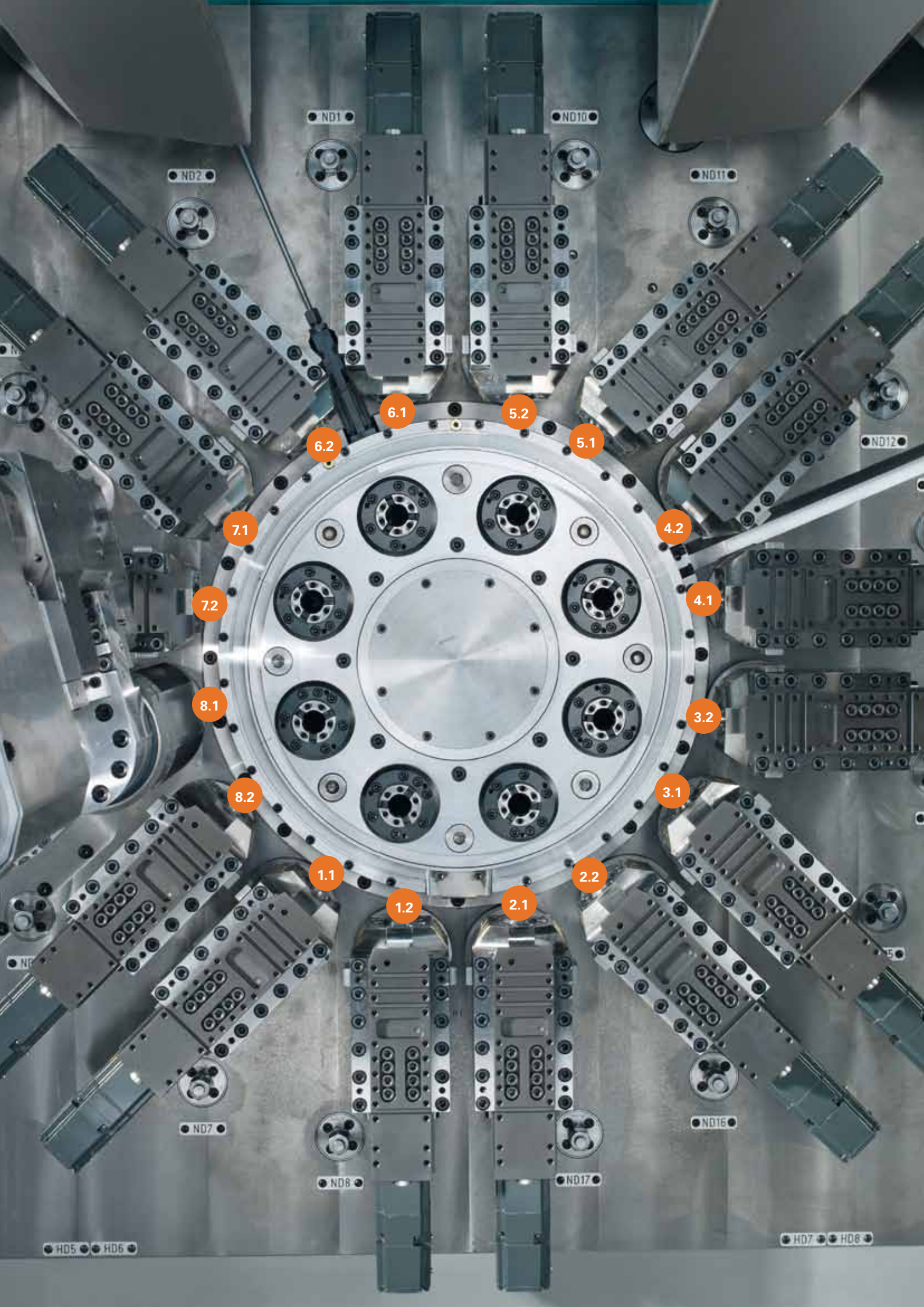
thus avoiding any additional secondary processing times.

More than just turning

INDEX CNC multi-spindle machines with driven tools, C-axis, and Y-axis give you access to entirely new processes, such as:

- Off-center drilling and thread cutting
- Inclined drilling
- Cross drilling
- Contour milling
- Hobbing (tooth cutting)
- Multi-edge turning





ND1

ND10

ND2

ND11

ND12

6.1

5.2

5.1

6.2

4.2

7.1

4.1

7.2

3.2

8.1

3.1

8.2

1.1

2.2

1.2

2.1

ND7

ND8

ND17

ND16

HD5 HD6

HD7 HD8

Precise, fast, and flexible



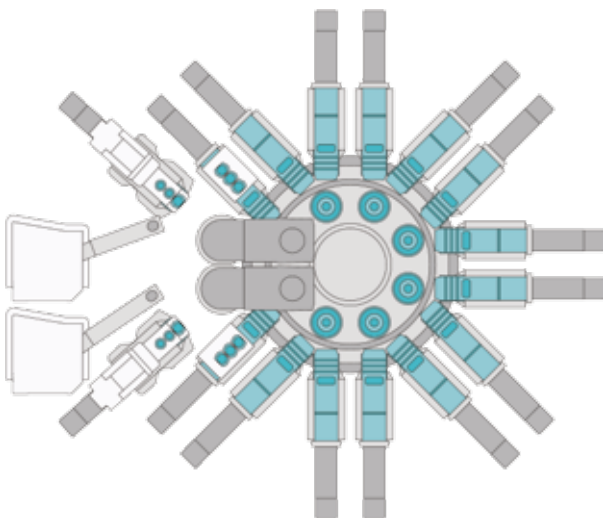
The strength of the MS22C-8 lies in its versatility.

Whether complex parts or different processes are involved – anything is possible

- A maximum of 16 tool carriers with 1 or 2 travel axes
- Y-axis (optional)
- 1 or 2 swiveling synchronous spindles
- Variable use of tool carriers for internal and external machining
- Use of several tools per tool carrier possible
- Transverse machining with driven tools
- C-axis and multi-edge turning for extended use options

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 via a Hirth coupling
- Favorable chip flow due to machining outside the main working area
- Numerous possibilities using driven tools in conjunction with C- and Y-axes as well as an electronic shaft



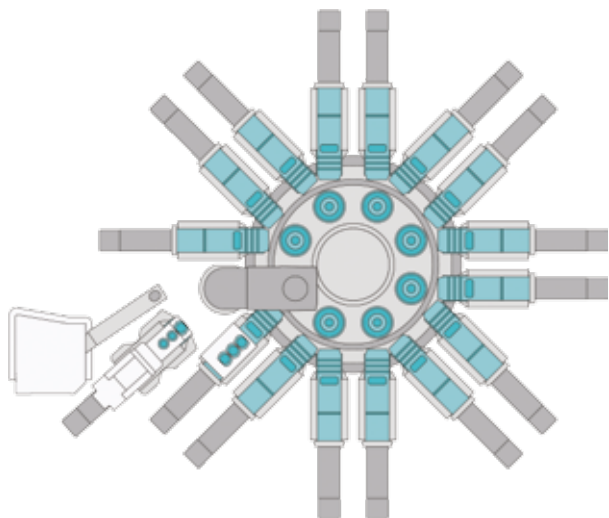
The double 4-spindle machine – an interesting configuration possibility

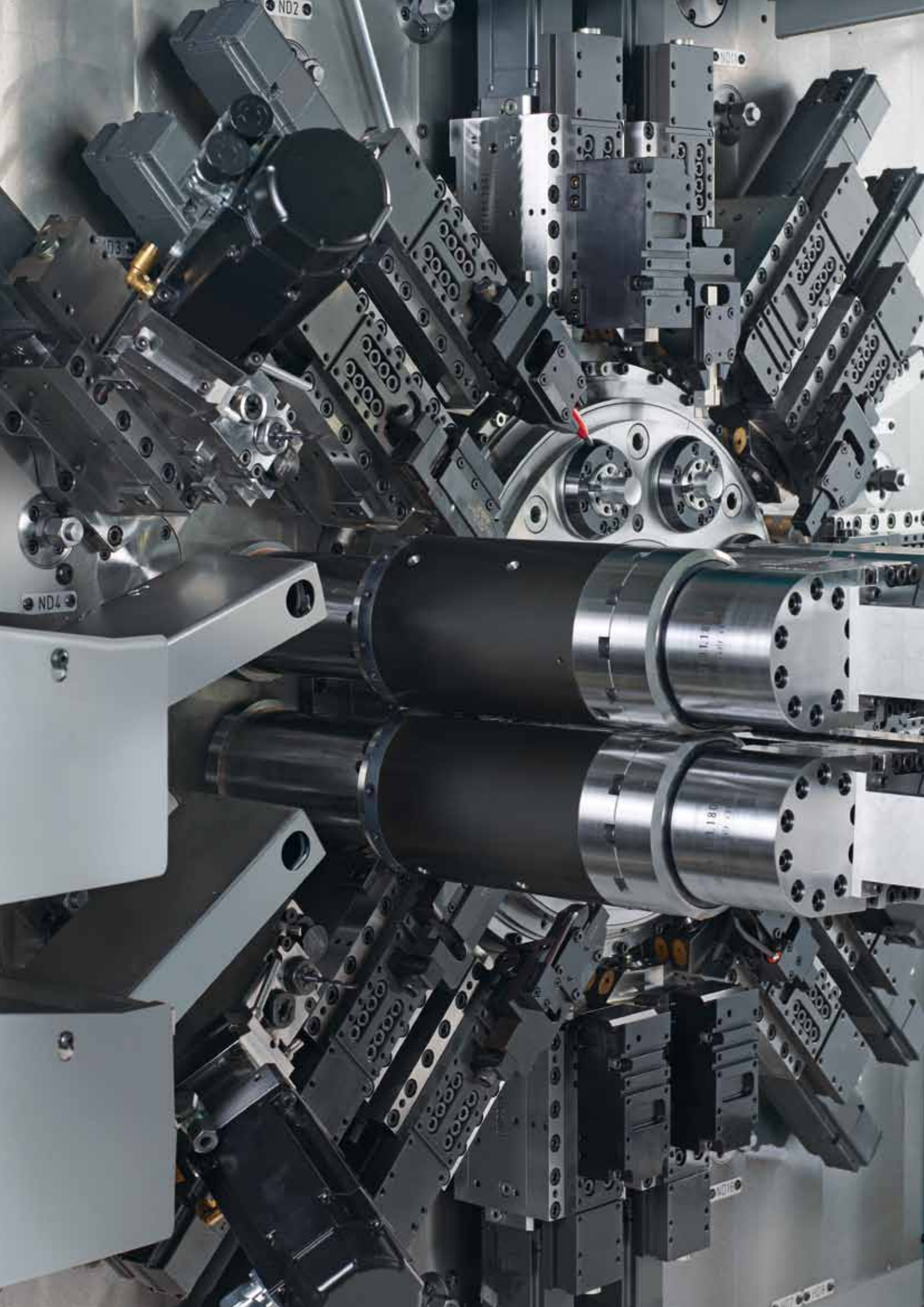
- Additional part production time reduction due to simultaneous manufacturing of 2 workpieces
- 14 tool carriers with 1 or 2 axes (optionally also Y-axis)
- 2 swiveling synchronous spindles
- 2 back-boring slides (option) with 3 tools each, of which up to 2 are driven

With the same configuration level as an 8-spindle machine with simultaneous rear end machining in two spindle positions

- Front end machining on 6 main spindles
- Simultaneous cutoff-side machining on 2 swiveling synchronous spindles

Benefit: Reduced cycle time with time-determining back-working

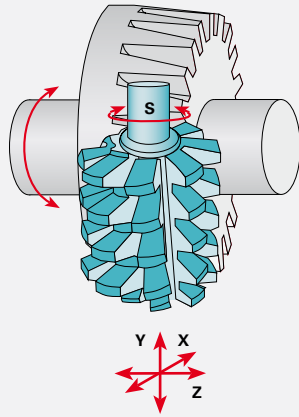




For a wide range of technologies

Tooth milling, hobbing

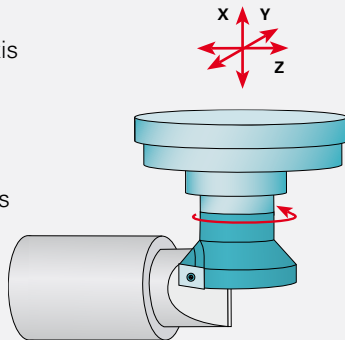
- Coupled with electronic precision
- Requirements with maximum stability
- Toothing in correct position relative to other surfaces or shaped elements
- Any angular offset can be programmed
- Greater tool service life due to shifting with Y-axis



Milling

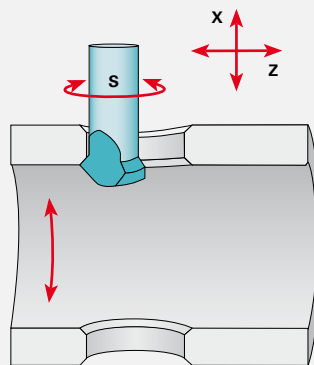
Milling with driven tool in the following variants

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



Elliptical deburring of cross-drill holes

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



Simply more possibilities

The working area – practically limitless machining possibilities per spindle position

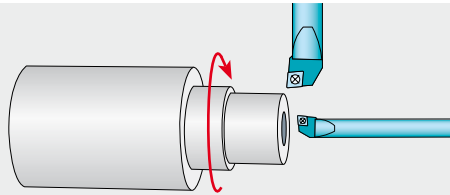
The tool carrier arrangement in the working area without a longitudinal sliding block allows more than one tool to be used on each spindle. The possible machining operations are thus limited only by the tool holder. As a result, you are free to specify any production step in any spindle position.

Another advantage:

You have unhindered chip flow.

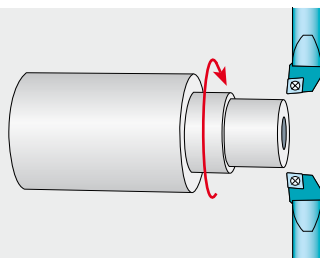
Performance, as we understand it

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 MS22 multi-spindle machine.

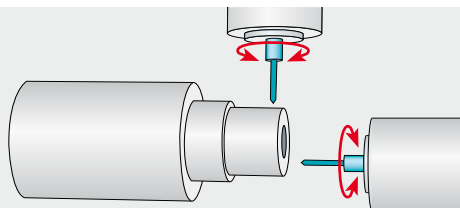


Machining examples

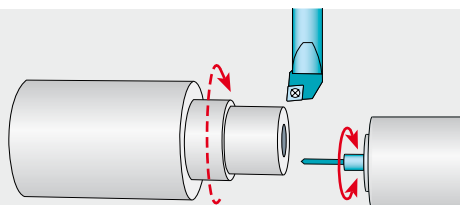
1. Turning O.D. –
Turning I.D.



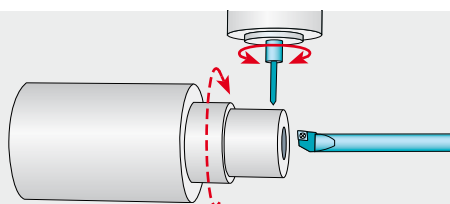
2. Turning O.D. –
Turning O.D.



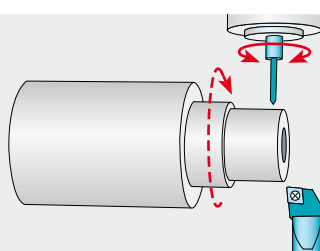
3. Driven tool outside –
Driven tool inside



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



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



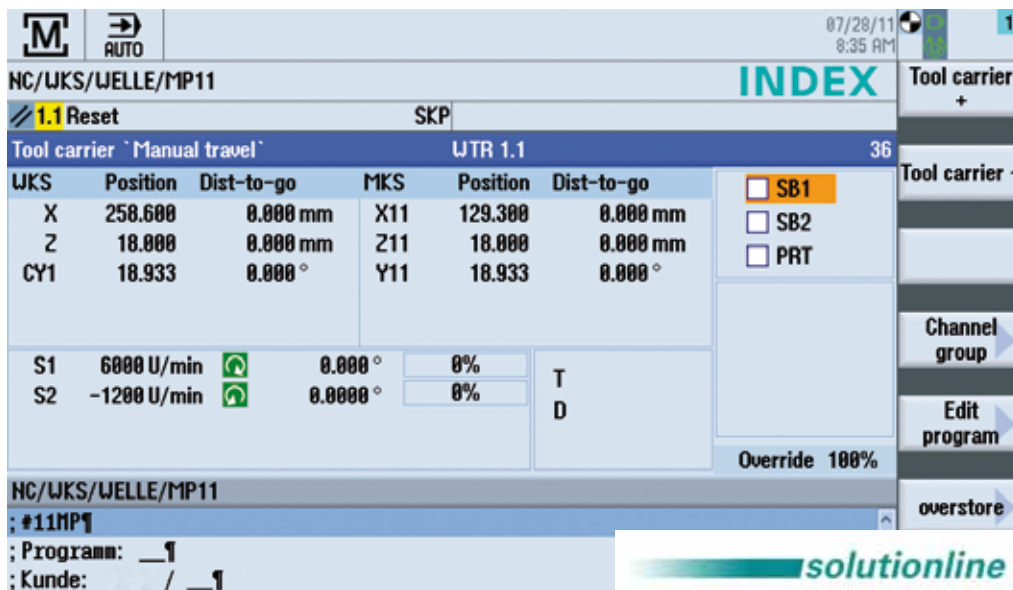
6. Driven tool outside –
Turning O.D.
(sequentially)

Convenient, flexible, safe – The control

The control of the MS22C-8 is based on the latest generation of the SINUMERIK 840D solutionline control system with Siemens SINAMICS drives. The new INDEXoperate user

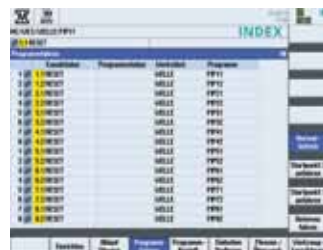
interface represents a consistent evolution of the INDEX user interface for multi-spindle automatic lathes. The result is a control that offers maximum performance capability while

providing maximum flexibility and outstanding ease of operation.



Ease of use

- All machine units can be moved manually with easy-to-understand, plain text-based manual operation screens.
- During setup, it is possible to individually move tool carriers, positions, or any groups of tool carriers. Single block, override, or production conditions are possible.



Convenient

- Numerous functions such as part production time evaluation or block time acquisition support the optimization of part programs.
- The various machining strategies can be freely selected: 8-spindle machines, double 4-spindle machines, or 8-spindle machines with double rear end machining.
- Programming is made easy and safe thanks to numerous machine cycles with supporting illustrations.
- All data necessary for setup are saved with the part program. This enables an unbeatably fast job change between different workpieces.

Flexible

- Cross-drilling and milling equipment as well as turners for drilling and turning operations can be configured and programmed on any tool carrier.
- Y-axes can be used for complex machining operations. These axes are fully-functional NC axes and can be easily programmed.

Safe

- The proven INDEX or Artis systems can be used to perform fully-integrated, sensorless tool break monitoring.
- Whether post-process or in-process measuring is involved, the INDEX control provides the proper interfaces for connecting to measurement computers.
- Safety Integrated included.



SINUMERIK

SIEMENS

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MC/UCS/UEL/MP11

1.1 RESET

Werkzeuggestaltung



Position	0.000°
Istwert	1000.000 mm
Sollwert	1000.000 mm
Container	0
Stellung genau	0 %
Auslastung	0 %

Override 100%

Schaltung 45 Grad
Schaltung 22.5 Grad
Schaltung Spind. 1 in 1
Verriegeln
Entriegeln
Details ausblenden
<< Zurück

Einrichten Abstand Steuern Programm Fahren Programm Beeinfl. Einheiten Bedienen Messen / Überwachen Werkzeugkorrekturen

INDEX C200-4D

Technical data

Work spindles

8

Maximum bar diameter	mm (inch)	22 (24) (0.87 [0.94])
Speed *	rpm	10000
Power (at 100%/25%)	kW (hp)	8,7 / 15 (11.7 / 20.1)
Torque (at 100%/25%)	Nm (ft lbs)	10 / 18 (7.4 / 13.3)

Tool carriers

16

Slide travel X	mm (inch)	62 (2.44)
Slide travel Z	mm (inch)	85 (3.35)
Slide travel Y	mm (inch)	24 (0.94)

Synchronous spindle

1/2

Maximum bar diameter	mm (inch)	22 (24) (0.87 [0.94])
Speed *	rpm	10000
Power (at 100%/40%)	kW (hp)	9,2 / 12 (12.3 / 16.1)
Torque (at 100%/40%)	Nm (ft lbs)	11 / 14 (8.1 / 10.3)
Swiveling angle of synchronous spindles	degrees	138
Slide travel Z	mm (inch)	120 (4.72)
Number of tools for rear end machining		3 / 6

Back-boring slides 1+2 (optional)

Tool carriers for rear end machining		1 / 2
Slide travel X	mm (inch)	62 (2.44)
Number of tools for rear end machining		3
of which driven		2

Dimensions, weight, and connected power (for maximum configuration level, without bar guide or loading magazine)

Weight	kg (lbs)	approx. 7100 (15652.6)
Length	mm (inch)	3349 (131.85)
Width	mm (inch)	2030 (79.92)
Height	mm (inch)	2854 (112.36)
Connected power **		53-77 kW, 63-91 kVA, 91-131 A, 400 V, 50/60 Hz

Control

INDEX C200-4D (based on Siemens 840D solutionline) with teleservice, spindle stop, C-axis in standard scope

Options

Multi-edge turning, hobbing, tool monitoring, Y-axis, transmit function

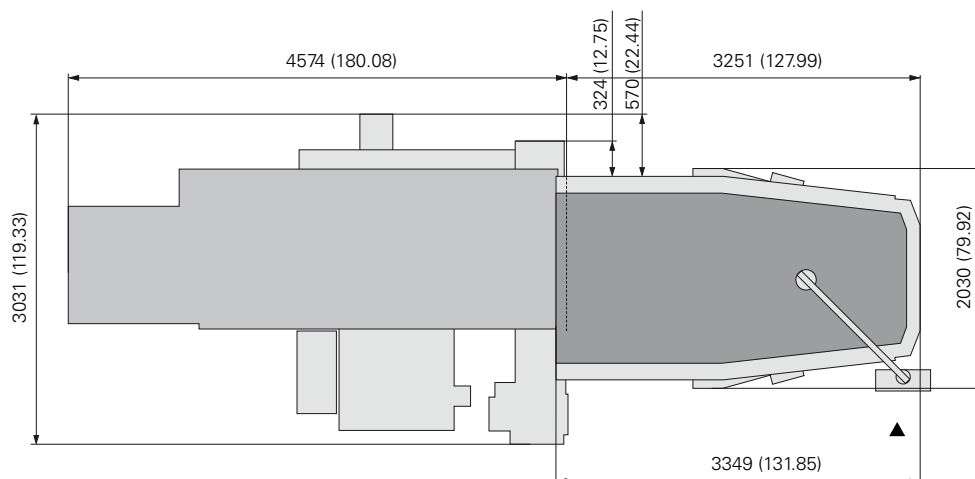
* Speed limitations are necessary, depending on bar diameter, bar guide and workpiece clamping

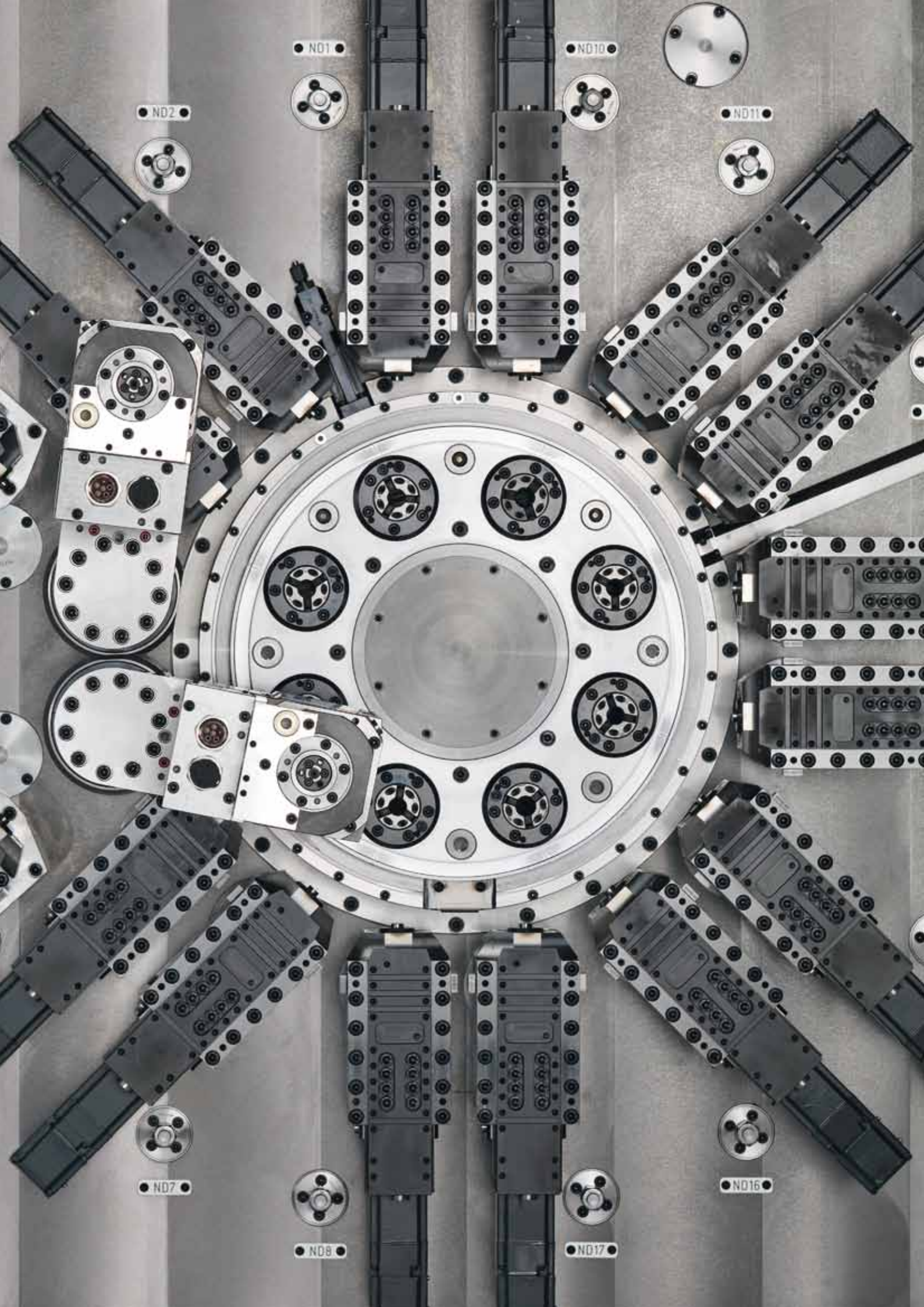
** Dependent on I/O devices

MS22C-8

IEMCA loading magazine

SIR 3300





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INDEX-Werke GmbH & Co. KG

Hahn & Tessky

Plochingen Straße 92

73730 Esslingen, Germany

Tel. +49 (711) 3191-0

Fax +49 (711) 3191-587

www.index-werke.de