

MS40-8

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

INDEX



better.parts.faster.

INDEX MS40-8

INDEX CNC multi-spindle automatic lathe More productive with 8 spindles!

With the totally configurable INDEX MS40-8, 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 eighteen tool carriers, which can be configured in XYZ, enable high-productivity manufacturing.

All aspects of the INDEX MS40-8 were developed using state-of-the-art manufacturing technologies.

Generously dimensioned and freely accessible, the work area minimizes setup cost, especially for changeovers. Unhindered chip fall is ensured even with full tooling.



**Designed to meet precise
user requirements –
the concept behind the
INDEX MS40-8**



Machine design

- Freely accessible work area, making setup particularly easy
- Highly dynamic slide 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 robot loading and unloading
- Directed part discharge through linear handling
- Extremely fast swiveling synchronous spindles with C axis
- Swing arm is locked in machining position by three-piece Hirth coupling ensuring maximum rigidity
- Maximum of 7 tools per swiveling synchronous spindle for rear-end machining

The key element: it's original when it originates from INDEX

Our hallmark – the spindle drum

The compact spindle drum ensures maximum precision in each position through the use of a three-piece Hirth coupling. The basis is composed of eight fluid-cooled motorized spindles integrated in the spindle drum. Infinitely variable speed control, compact design, low maintenance and the latest synchronous drive technology provide a guarantee for high-precision workpieces.

Independent speeds

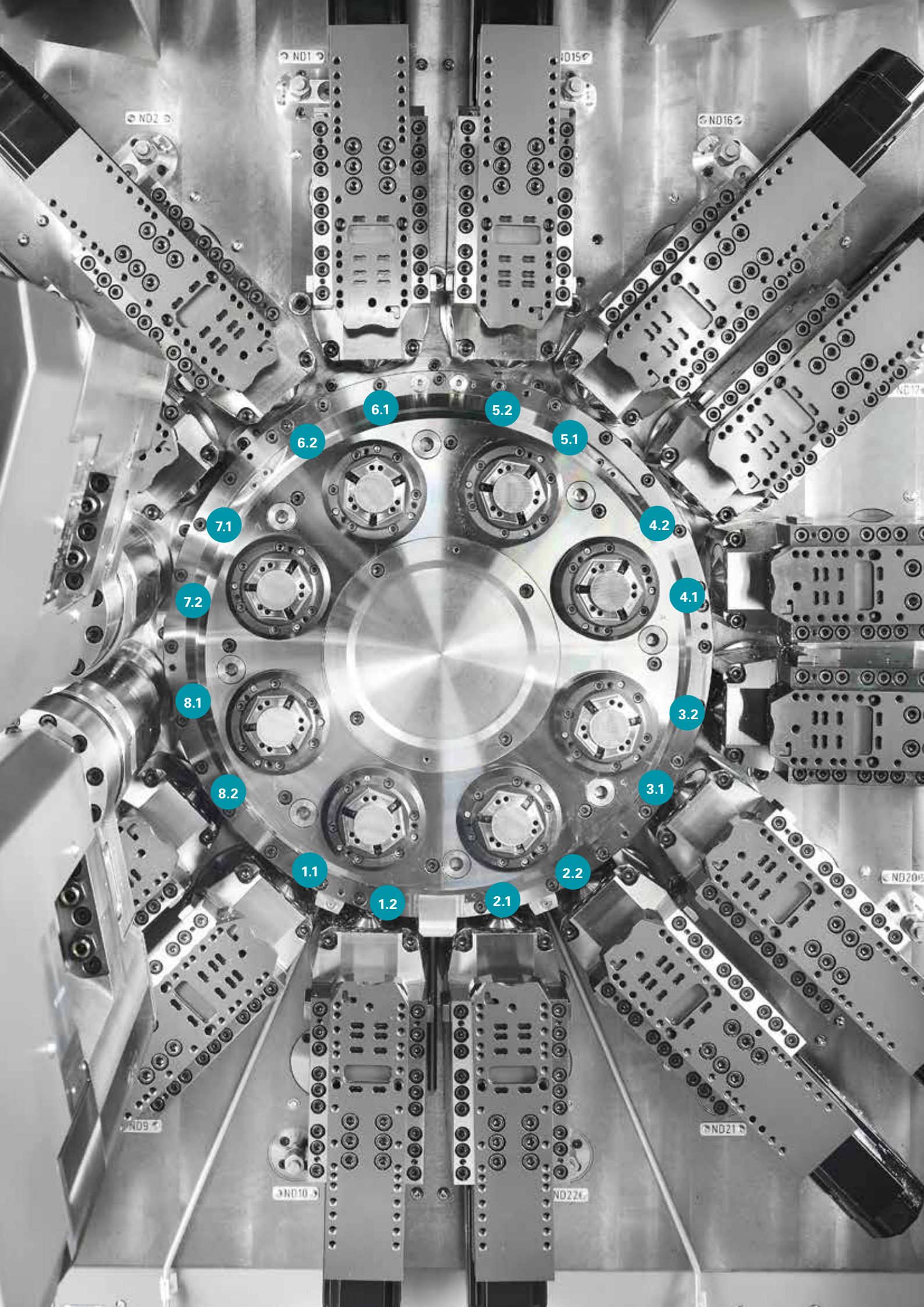
During machining, it is always possible to program the optimum speed, which can still be varied during cutting, for each spindle position and each cutting edge of the tool. The results are optimum chipping, maximum surface quality, short production times per piece, and extended tool life. You can also machine high-strength materials that, until now, were hardly suitable for multi-spindle automatic lathes. 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





ND1

ND15

ND2

ND16

6.1

5.2

6.2

5.1

7.1

4.2

7.2

4.1

8.1

3.2

8.2

3.1

1.1

2.2

1.2

2.1

ND9

ND21

ND10

ND22

ND20

Precise, fast, and flexible

Versatility is a strength of the INDEX MS40-8. Whether complex parts or manufacturing methods are involved – almost anything is possible

- A maximum of 18 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
- Cross machining with live 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 7 tools, 4 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 work area
- Numerous possibilities using live tools in conjunction with C and Y axes, as well as an electronic shaft

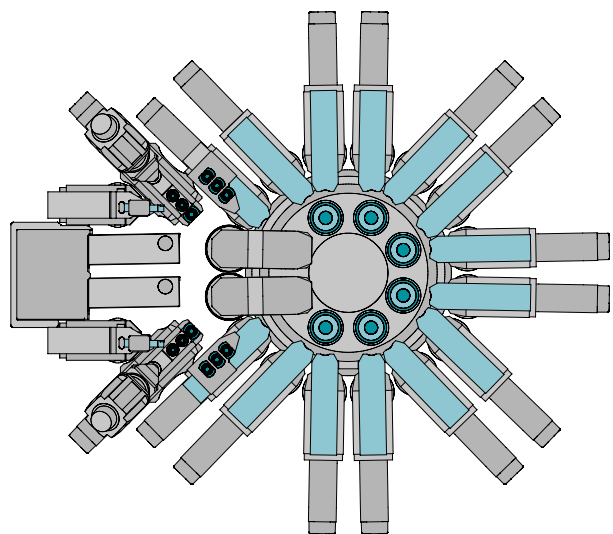
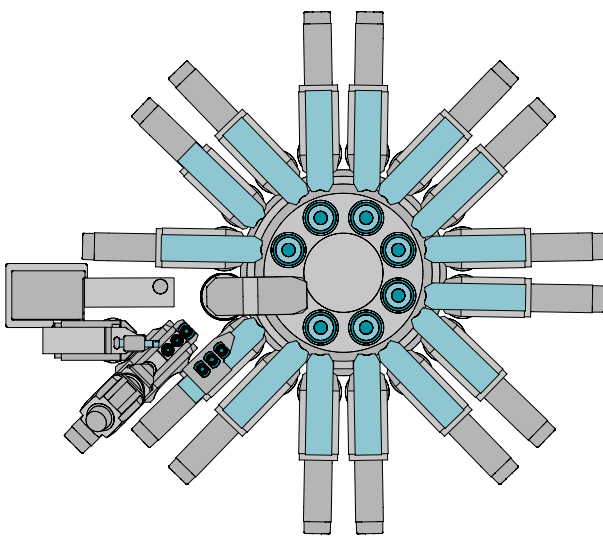
The double four-spindle machine – an interesting upgrade option

- Additional part production time reduction due to simultaneous manufacturing of 2 workpieces
- 18 tool carriers with 1 or 2 axes (optionally also Y axis)
- 2 swiveling synchronous spindles and up to 7 tools for face machining, 4 of them live (per spindle)

The same configuration level 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

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



ND5



ND7



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GM2801-1585
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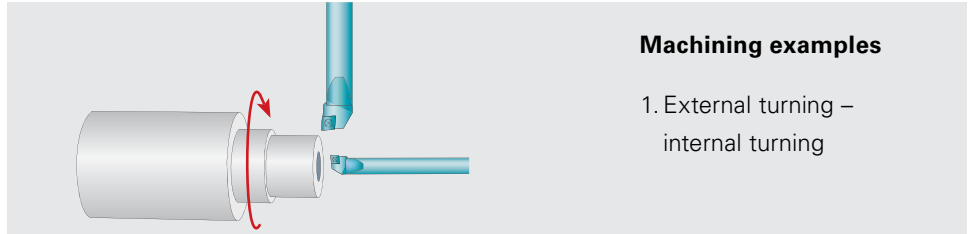
Simply more possibilities

The work area – virtually limitless machining capabilities 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. Available machining operations are therefore limited only by the tool holder. As a result, you can specify all production steps in all spindle positions. Another advantage: They have free chip fall.

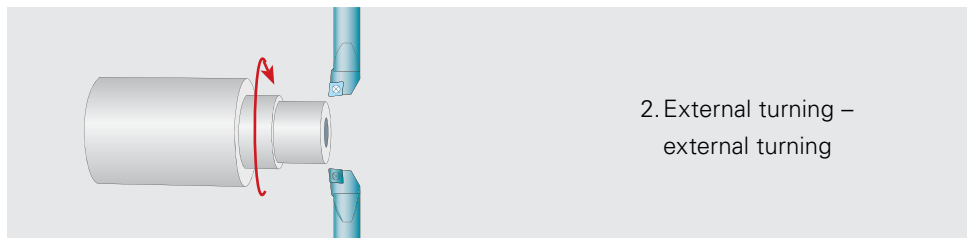
Performance, as we understand it

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 MS40-8 multi-spindle automatic lathes.

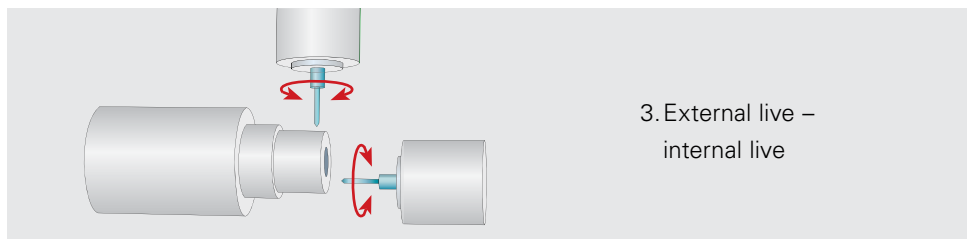


Machining examples

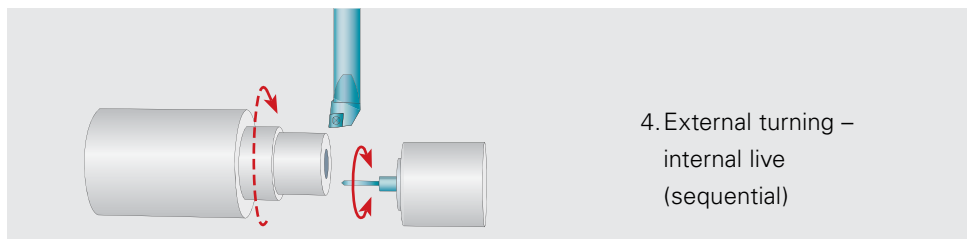
1. External turning – internal turning



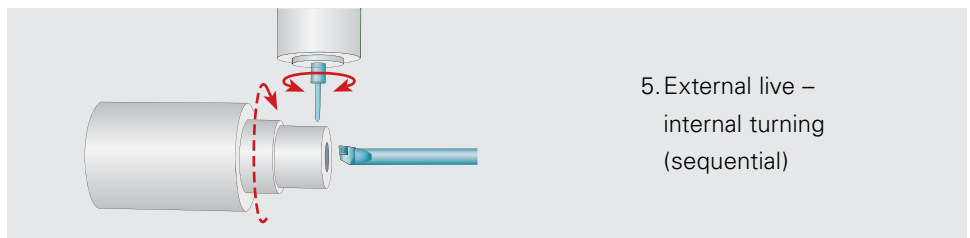
2. External turning – external turning



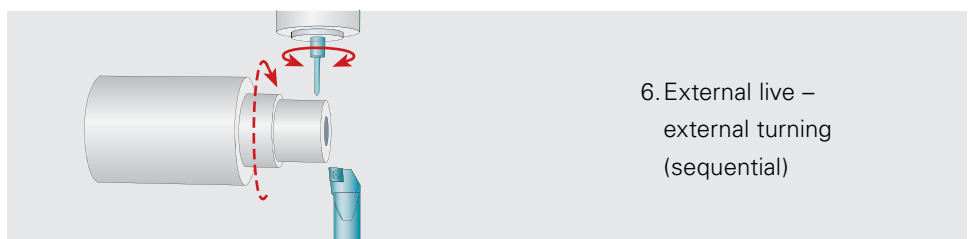
3. External live – internal live



4. External turning – internal live (sequential)



5. External live – internal turning (sequential)



6. External live – external turning (sequential)

For the most diverse technologies



Valve sleeve

Dimensions, mm	dia. 35 x 70
Material	42CrMo4



Mounting

Dimensions, mm	dia. 38 x 70
Material	16MnCr5



Valve screw

Dimensions, mm	dia. 32 x 85
Material	42CrMo4



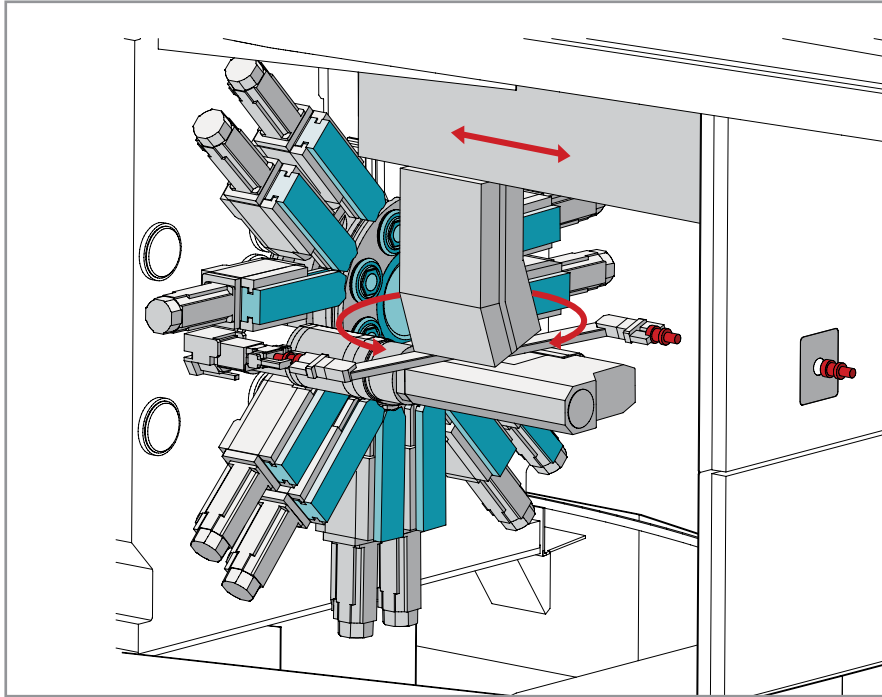
Drive shaft

Dimensions, mm	dia. 20 x 115
Material	X8CrNiS18-9

Drive pinion

Dimensions, mm	dia. 28 x 60
Material	11SMnPb30

Workpiece handling systems

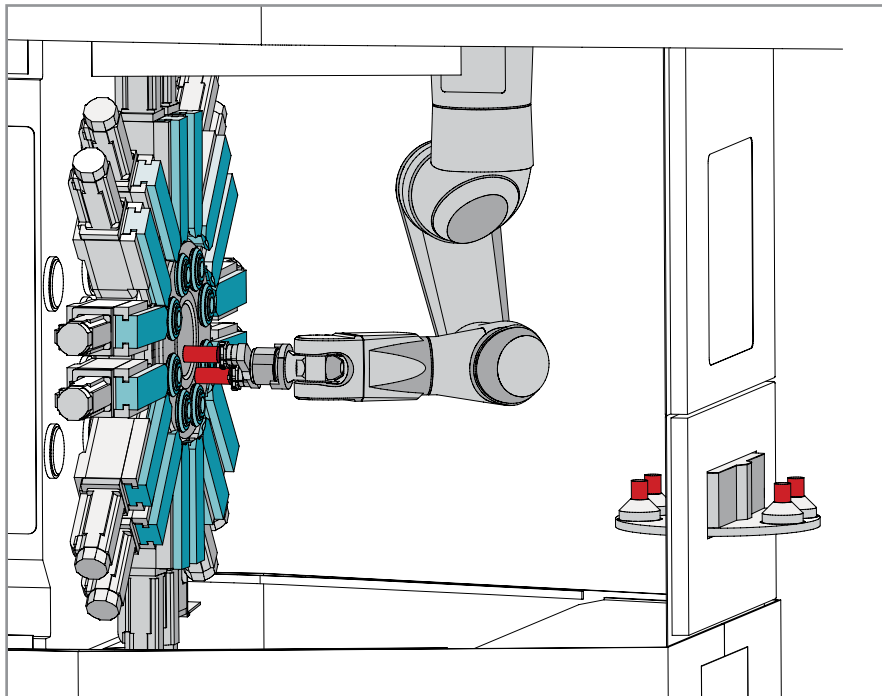


Linear shuttle with intermediate gripper for directed parts discharge from spindle position 8

Very rapid, position-oriented removal by a linear and rotary motion. The workpiece is transferred first from the synchronous spindle to the intermediate gripper.

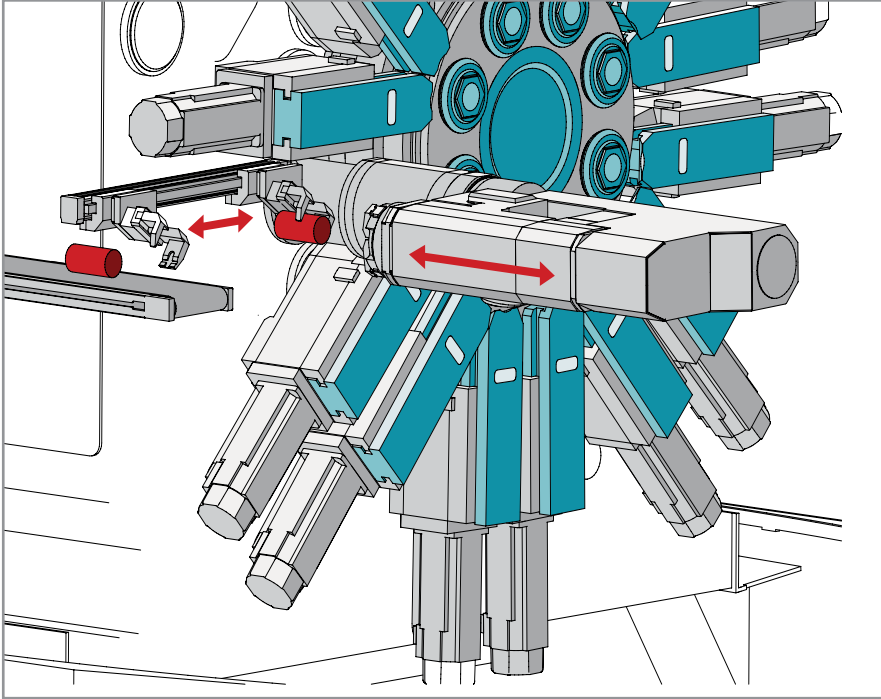
The linear shuttle then takes the workpiece from the intermediate gripper and passes it to the external handling system.

This process takes place during secondary processing time.



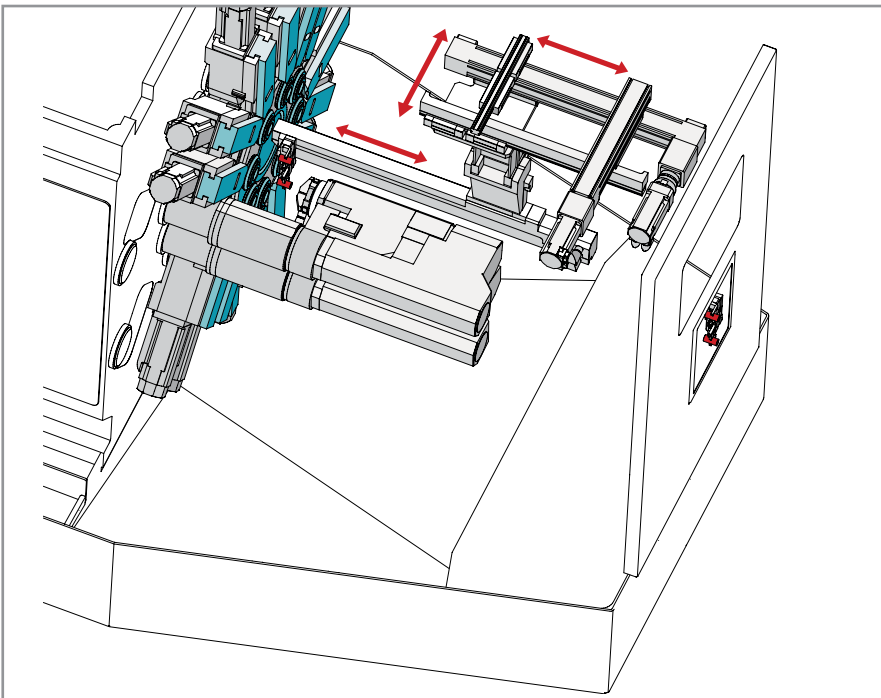
Parts feed and discharge by 6-axis robot via the swivel disk interface to the external handling system

The workpiece handling system for chuck parts and bar segments can be used for 8-spindle machining with and without synchronous spindle, as well as for double 4-spindle machining. A 4x OP10 (first side) and 4x OP20 (second side) variant, with external turning station, is also available.



Directed parts removal from synchronous spindle onto the internal conveyor belt

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



3-axis linear shuttle for directed parts removal from the synchronous spindle

Damage-free and position-oriented delivery of components is provided from the synchronous spindle in position 8, or positions 7 and 8, to the external handling system at the front of the machine. All 3 axes of the machine-integrated handling system are NC-controlled.



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 as standard and can be individually extended. You can use iXpanel as you want it for your business organization – that's Industry 4.0 tailored to your needs.

Future-proof.

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



Productive.

Machine performance is maximized by optimally tuned processes in machine cycles with clear control screens. In addition, technology cycles are provided for frequently recurring machining operations and safe machine operation as well as for optimum machining quality.



Intelligent.

The machine always starts with the control home screen. Other functions can always be displayed on a second screen, and the operator enjoys direct, activity-related assistance already in the standard version, such as workpiece drawing, setup lists, programming tools, documentation, etc., right at the machine.



Virtual & open.

With the optional VPC box (industrial PC), iXpanel 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!















CUSTOMER





18.5" TOUCHSCREEN MONITOR

STANDARD included as standard

OPTION

Industry 4.0 features

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

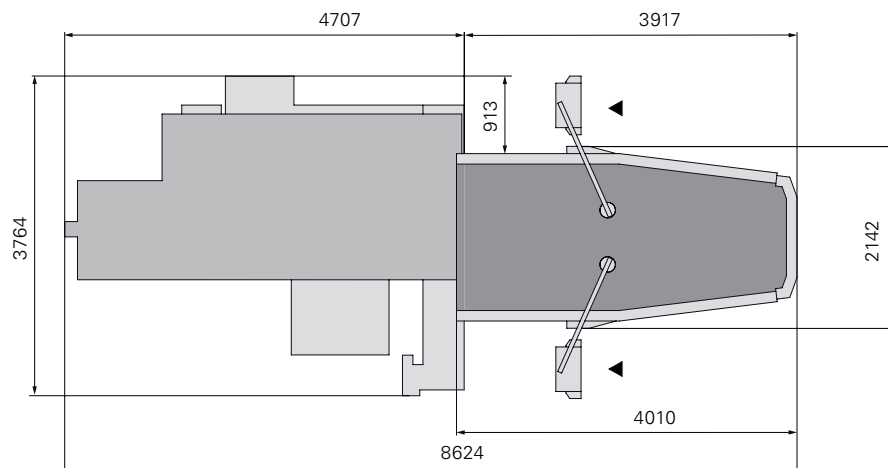
-  VPC Box
-  Virtual machine 3D simulation
-  VirtualPro Programming Studio
-  Custom applications

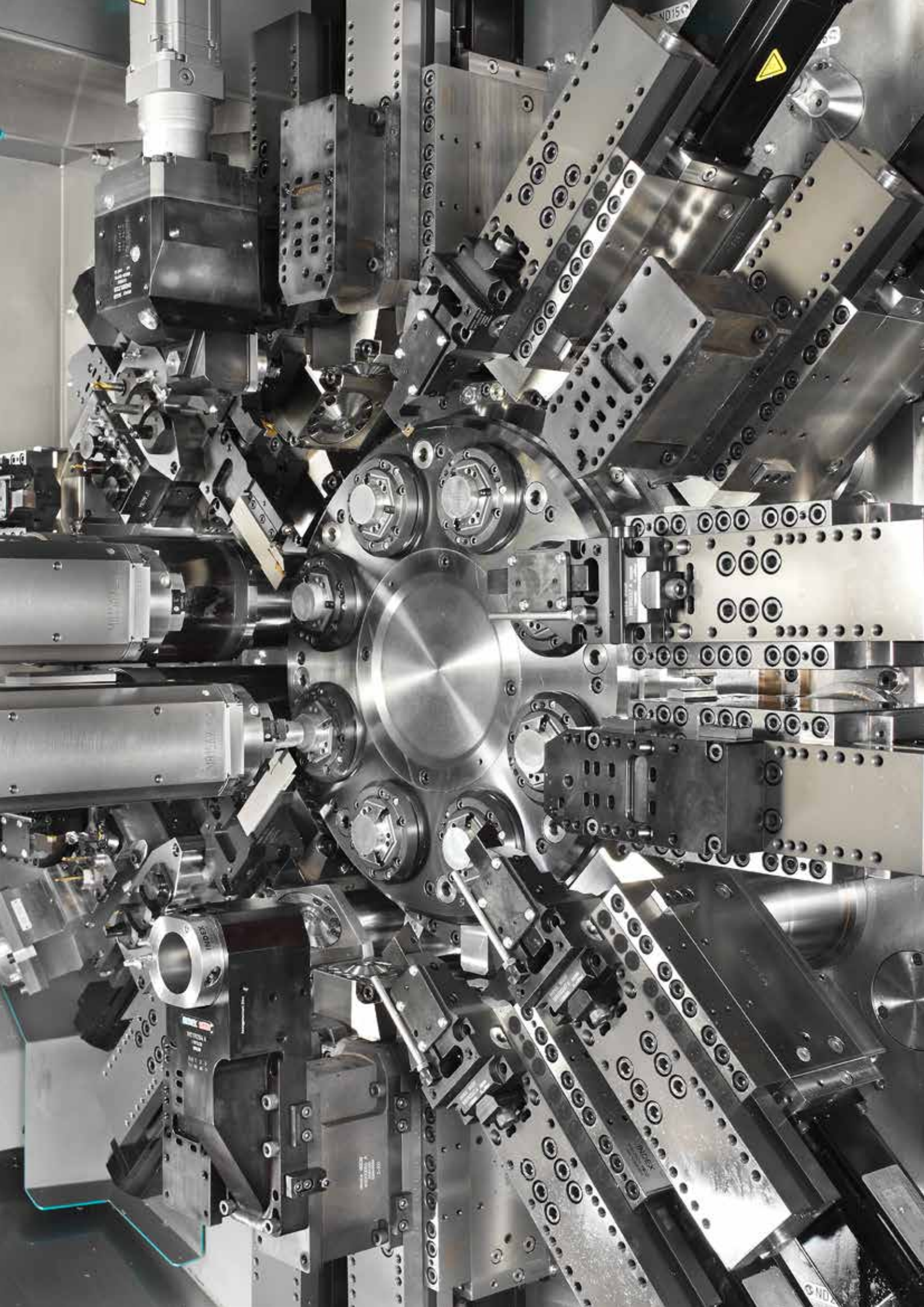
+ many more standard features

Technical data

Work spindles		8
Max. bar diameter	mm	40
Speed *	rpm	7,000
Drive power (100%/25% DC)	kW	13/24
Torque (100%/25% DC)	Nm	31/57
Tool carrier		16
Slide travel X	mm	85
Slide travel Z	mm	120
Slide travel Y	mm	42
Synchronous spindle		1/2
Max. clamping diameter	mm	40
Speed N _{max.}	rpm	8,000
Speed N _{rated}	rpm	6,000
Drive power (100%/40% DC)	kW	10/14
Torque (100%/40% DC)	Nm	16/22
Swiveling angle of synchronous spindles	deg.	190
Slide travel Z	mm	150
Number of tools for rear-end machining		7/14
Back-boring slides 7.3 / 8.3 (optional)		
Tool carriers for rear-end machining		1/2
Slide travel X	mm	82
Number of tools for rear-end machining		3/6
Of which driven		2/4
Back-boring slides 7.4 / 8.4 (optional)		
Tool carriers for rear-end machining		1/2
Slide travel X	mm	45/55
Slide travel Z	mm	120
Number of tools for rear-end machining		1/2
Of which driven		1/2
Machine dimensions		
Length x width x height	mm	4010 x 2142 x 3216
Weight	kg	10,300
Connected power		66-104 kW, 78-123 kVA, 113-177 A, 400 V, 50/60 Hz
Control		Siemens S840D sl
Options		
Polygon turning, hobbing, tool monitoring, Y axis, transmit function		

INDEX MS40-8
 Loading magazine
 INDEX MBL 3300





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