

MS16-6
MS16-6 PLUS

*CNC-Multi spindle turning machines
for high productivity*

INDEX



better.parts.faster.

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

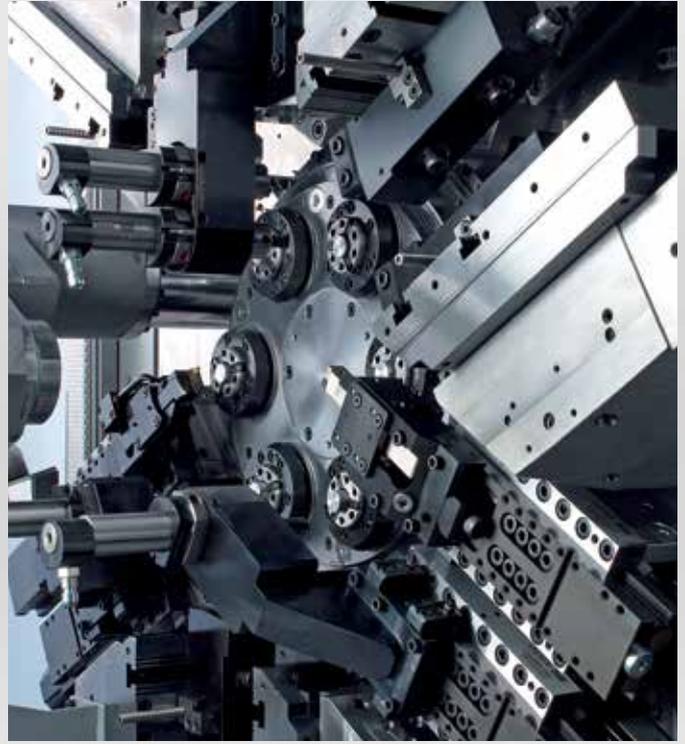
The INDEX MS16-6 / INDES MS16-6 plus combines the flexibility of modern INDEX CNC multi-spindle technology with the familiar productivity of cam-controlled machines. With 5 extremely rigid CNC grooving slides, optionally also drilling slides instead of grooving slides, and further machining slides with 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 INDEX MS16-6



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
- 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 hallmark – 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 low maintenance – that's what INDEX CNC multi-spindle machines stand for.

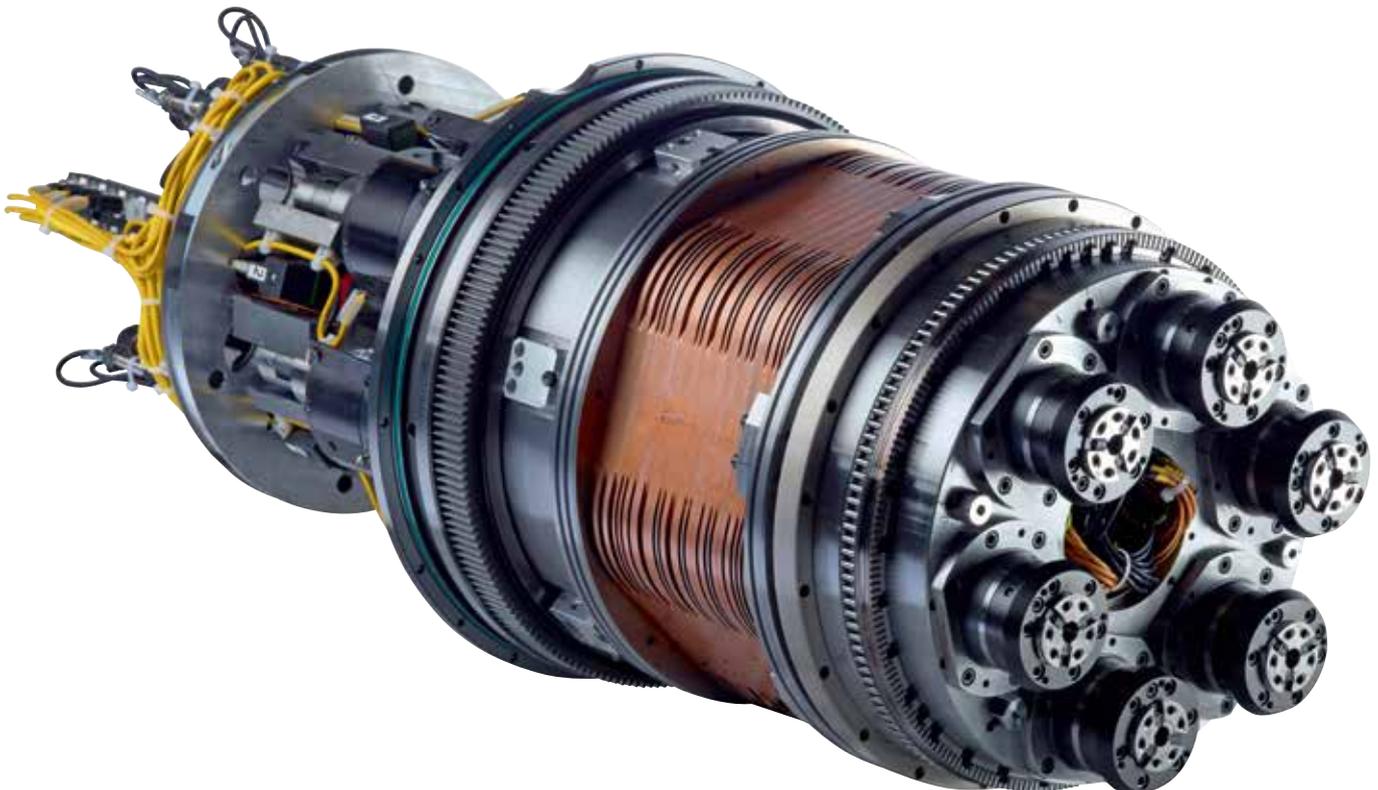
Independent speeds

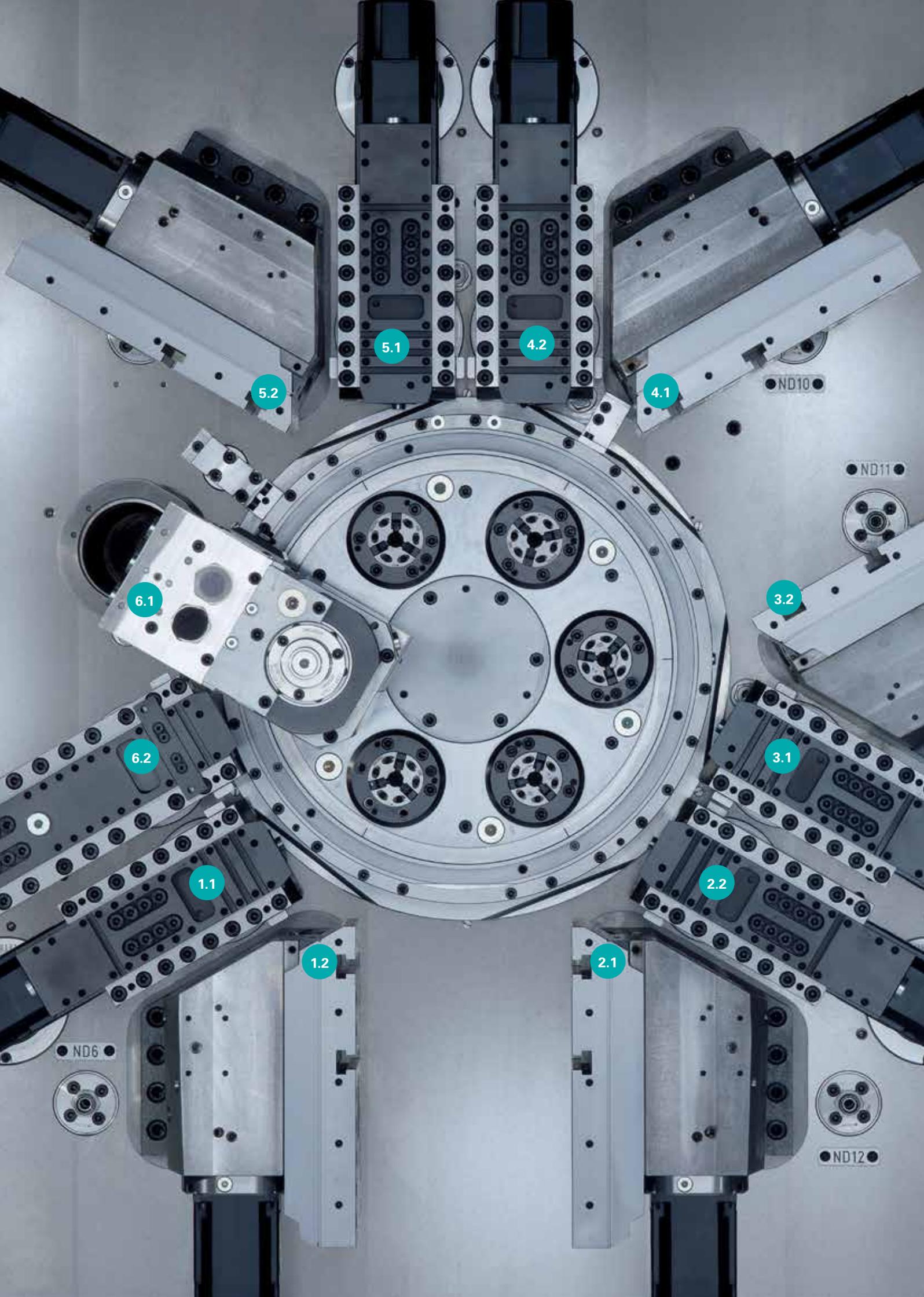
During machining, it is always possible to program the optimum speed, which can still be varied during cutting, for each spindle position and each cutting edge of the tool. The result is optimum chipping, maximum surface quality, short production times per piece, and extended tool life. You can also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





5.1

4.2

5.2

4.1

ND10

ND11

6.1

3.2

6.2

3.1

1.1

2.2

1.2

2.1

ND6

ND12

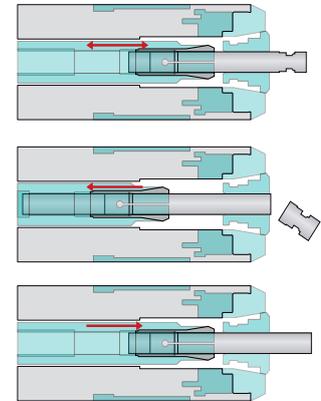
Impressively fast and flexible



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

INDEX MS16-6 integrated bar feeder for even shorter cycle times

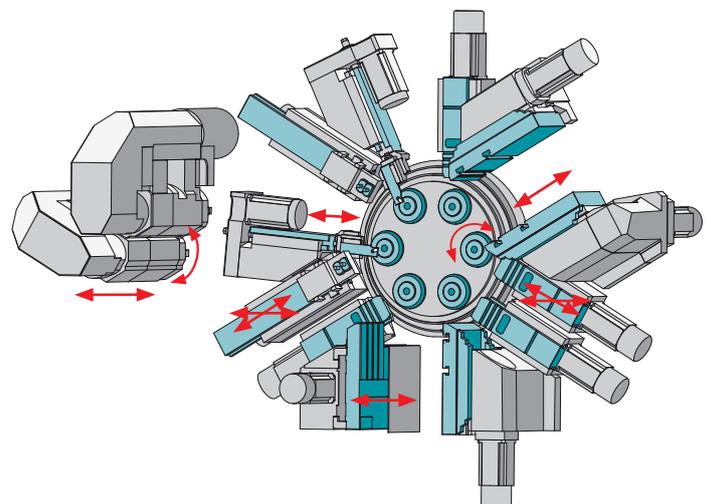
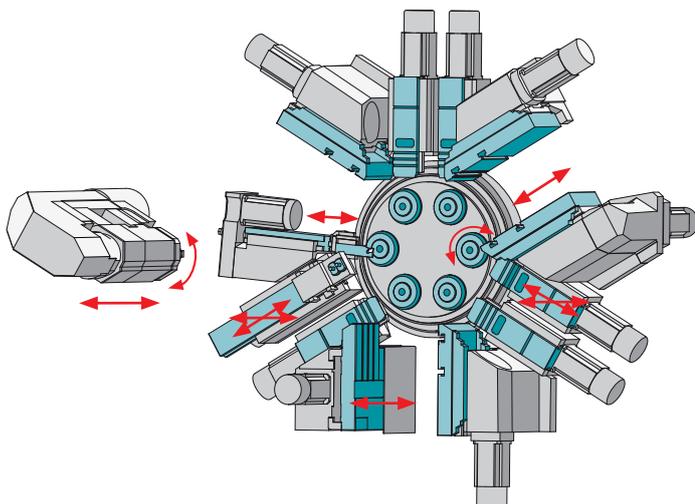


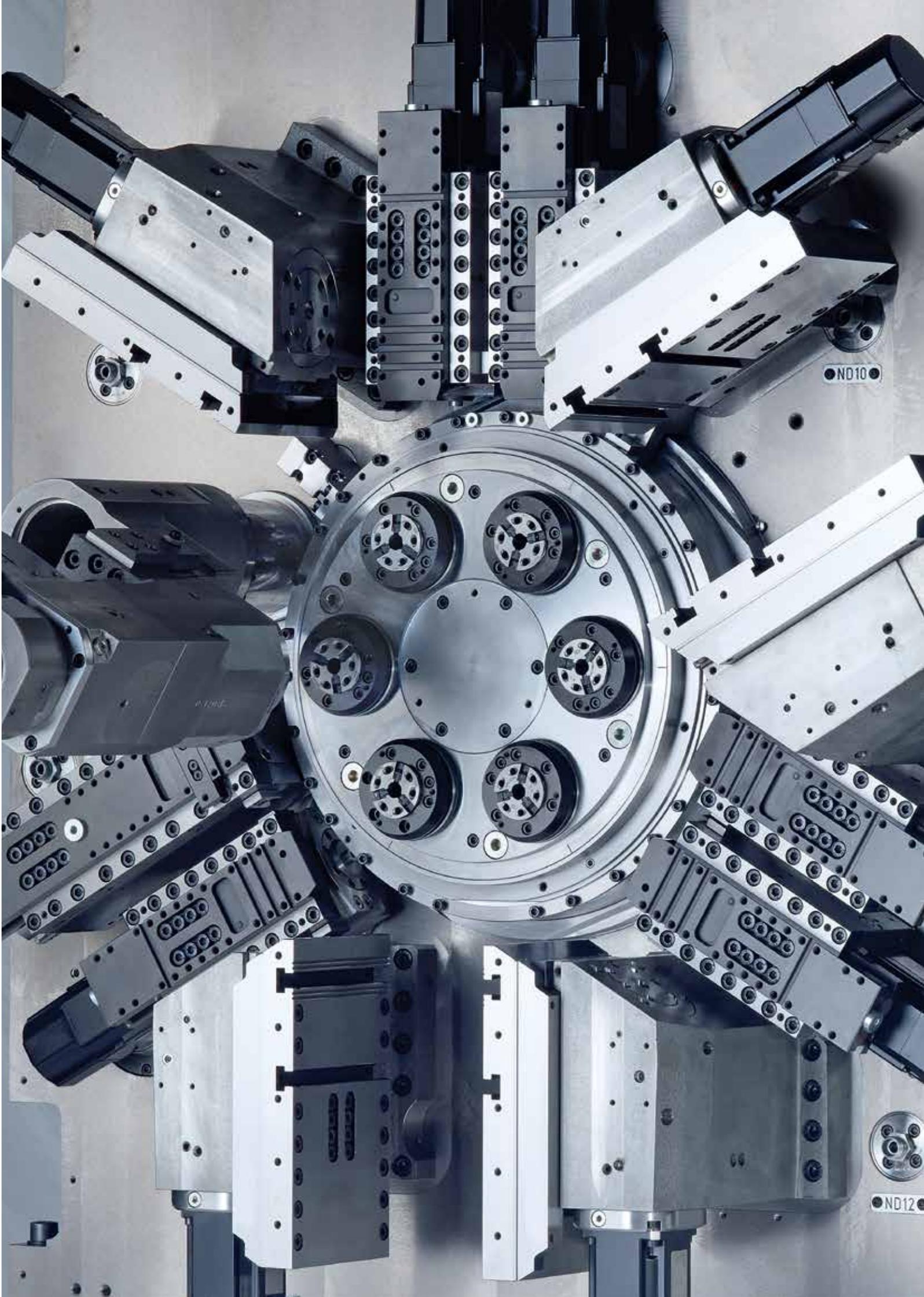
Configuration as a single synchronized machine

- 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 to 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)





ND10

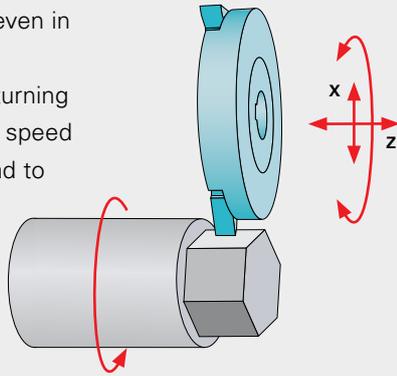
ND12

For various technologies

Polygonal turning

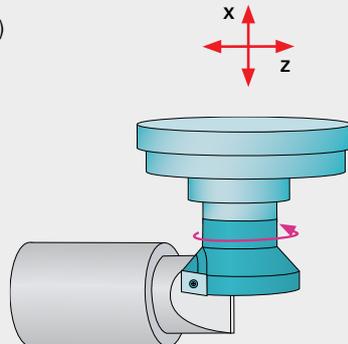
Polygonal turning is possible in longitudinal and grooving processes, even in high-alloy materials

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



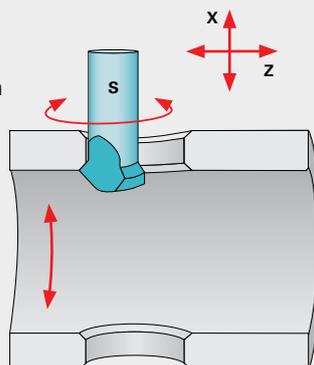
Milling

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

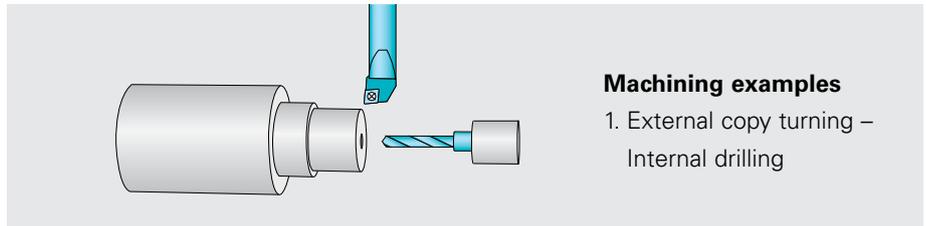
The work area—almost limitless machining capabilities in each spindle position

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.

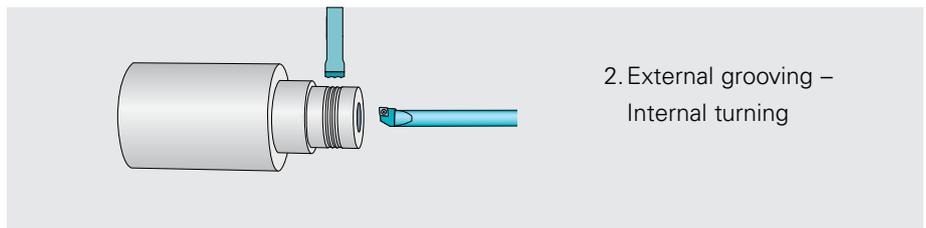
Performance as we understand it

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.

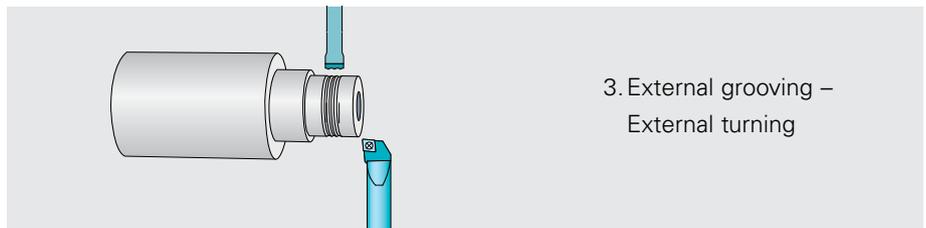


Machining examples

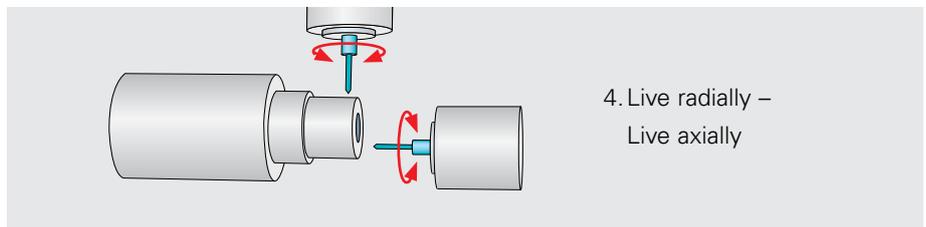
1. External copy turning – Internal drilling



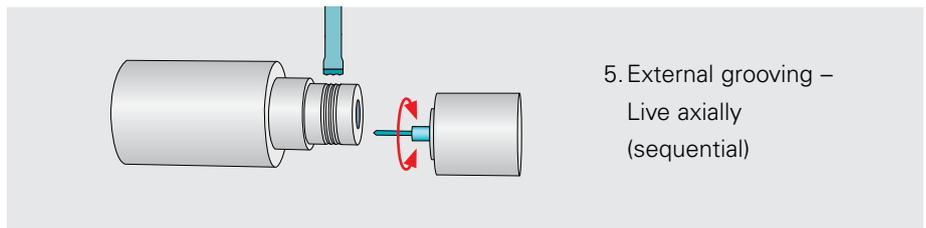
2. External grooving – Internal turning



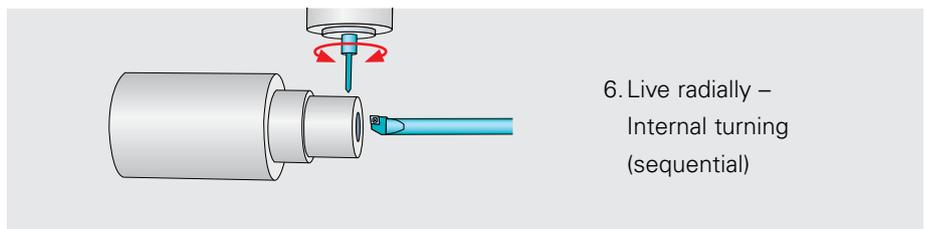
3. External grooving – External turning



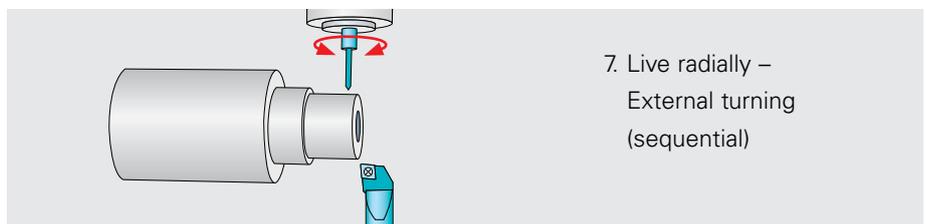
4. Live radially – Live axially



5. External grooving – Live axially (sequential)

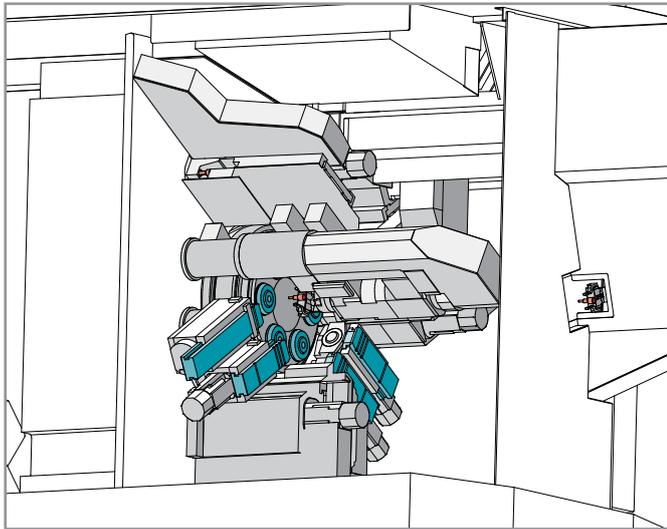


6. Live radially – Internal turning (sequential)



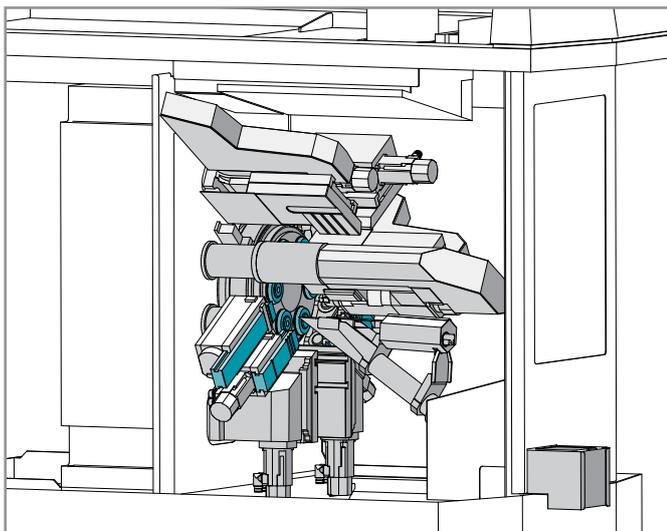
7. Live radially – External turning (sequential)

Workpiece handling systems



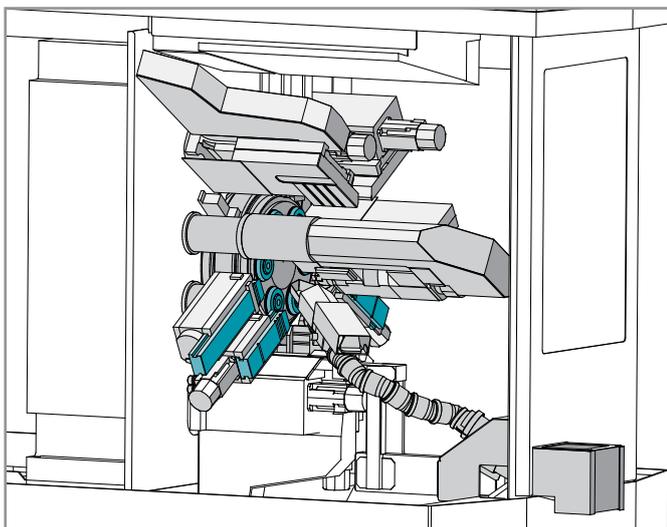
3-axis-linear shuttle for directed parts removal

Damage-free, rapid and position-oriented parts removal by a linear and rotary motion. The workpiece is transferred from the synchronous spindle in position 6 to the external handling system.



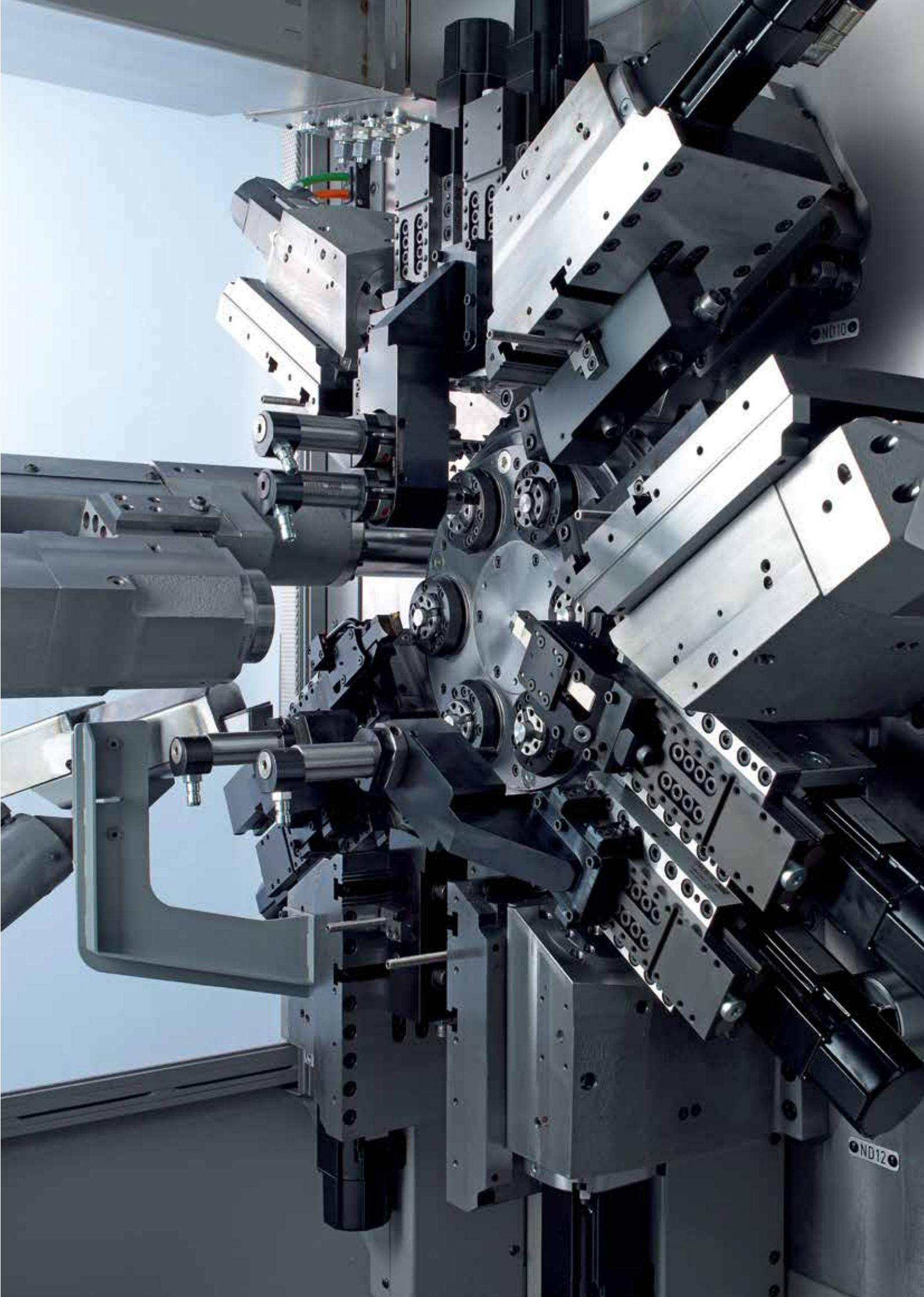
Fixed system parts removal

Rapid parts removal by a fixed slide with pneumatic chip protection in spindle position 6



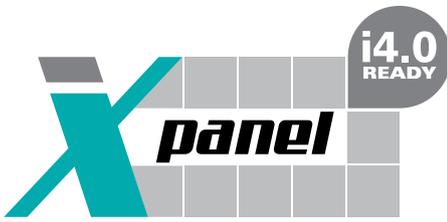
Pneumatic parts removal

Adjustable parts removal with a pneumatic lift in spindle position 6



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

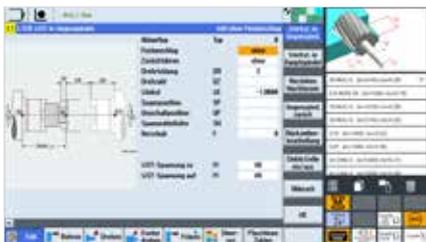


Focus on production and control – Industry 4.0 included.

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. So 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 via an 18.5” touchscreen.



Productive.

Maximum machine performance by optimally tuned processes in machine cycles with clear control screens. In addition, technology cycles 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 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!



CUSTOMER

18.5" TOUCHSCREEN

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

Working spindles		6
Max. bar diameter	mm	16
Speed *	rpm	10,000
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	10,000
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	2,599
Width	mm	1,300
Height	mm	3,044
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

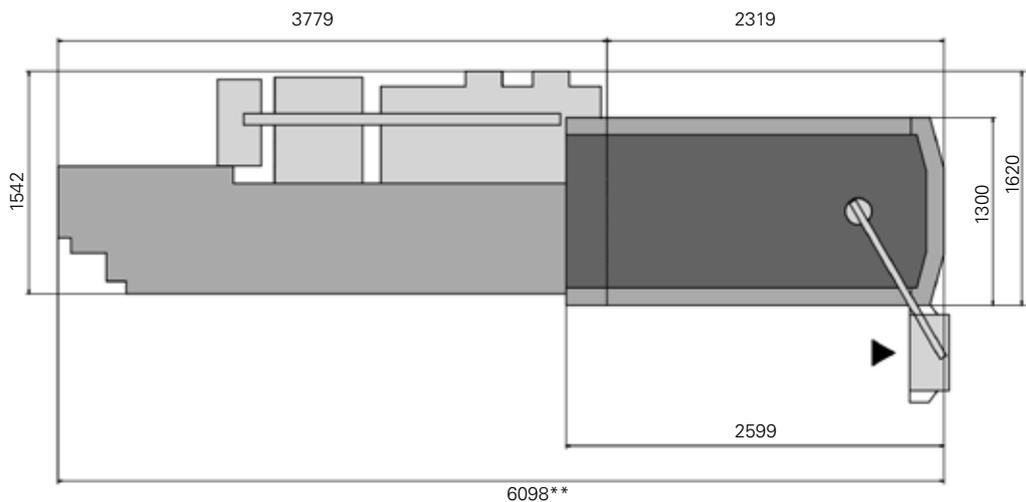
Multi-edge turning, tool monitoring, transmit function

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

** Dependent on I/O devices

MS16-6

IEMCA Next 3000



Technical data

Working spindles		6
Max. bar diameter	mm	22
Speed *	rpm	10,000
Power (at 100%/25%)	kW	8.7 / 15
Torque (at 100%/25%)	Nm	10 / 18
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 live
Synchronous spindle max.		2
Max. clamping diameter	mm	22
Speed *	rpm	10,000
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)		
Mass	kg	ca. 5,200
Length	mm	2,599
Width	mm	1,300
Height	mm	3,044
Power consumption **		approx. 49 kW

Control

INDEX C200-4D (based on Siemens S840D sl) with Teleservice feature, spindle stop, C-axis in standard scope

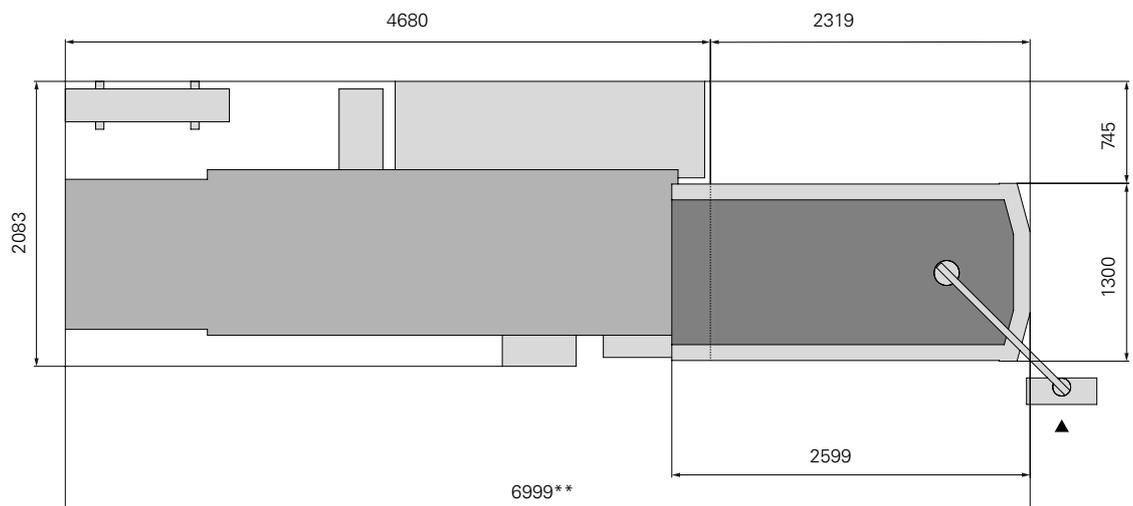
Options

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

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