

SpeedLine
C100
C200

Production turning machines



The power packs for high-speed machining

With the INDEX C100 and C200 machines, new opportunities open up for high-speed production of parts turned from bar stock. Despite their compact

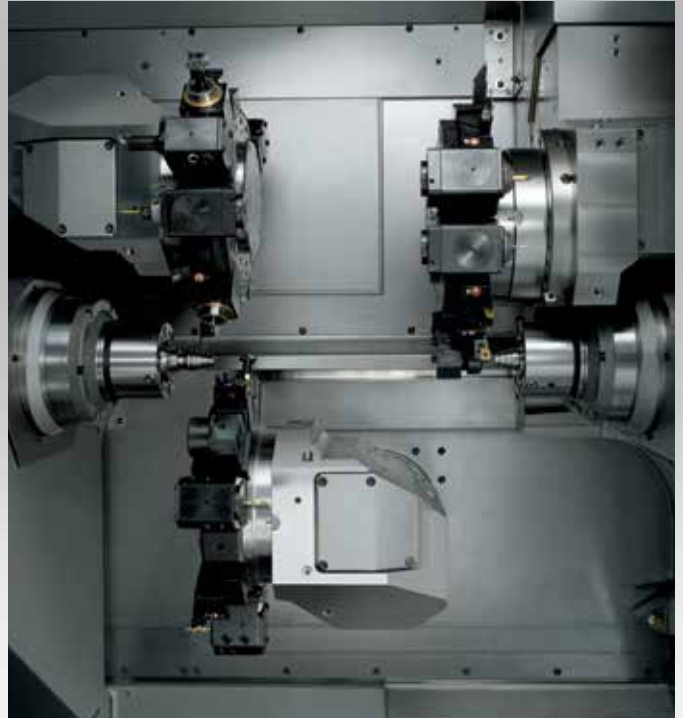
exterior dimensions, the INDEX C100 and C200 as 2 or 3-turret-machines offer a spacious working area for the complete machining of workpieces. The new

guideway system INDEX SingleSlide guarantees substantially higher dynamics with optimum vibration damping. The quality of the workpiece is improved as is

the tool life in combination with reduced cycle times.



**New productivity for parts
turned from bar stock**



High speed

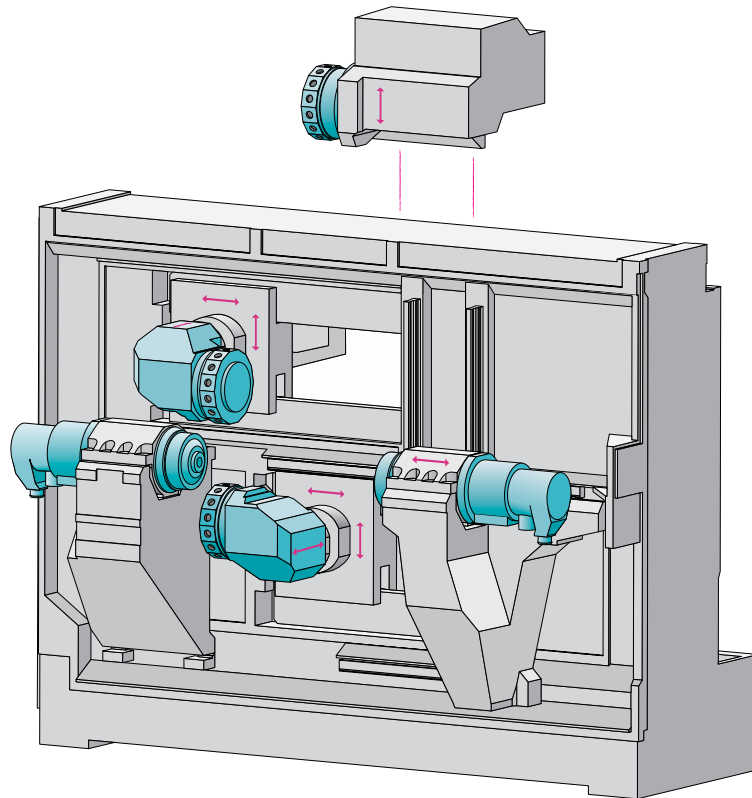
- **C100:** 42 mm
C200: 65 or 90 mm
bar capacity
- Simultaneous machining
with 2 or 3 turrets
- High acceleration (1g)
and high rapid traverses
(60 m/min)
- Workpiece carrier with
Y-axis available at main
and counter spindle
- Quick turret indexing
- Very good vibration
damping through
INDEX SingleSlide

Complete machining

- Maximal part diversity
through 3 turrets and
42 tools
- All stations driven
- 2 Y axes
- Machining with bottom
turret at main and counter
spindles possible
- High-quality backworking
- Clearly structured
machining area
- Ready access to working
area during setup

Excellent productivity, impressive flexibility

The typical INDEX added value in machine design is shown in many details of the INDEX C100 and C200 machines. Up to three turrets and a clearly structured machining area increase productivity. Further details maximize the flexibility and the possible part diversity with short setup times. The vertical design of the machine bed guarantees optimum swarf removal and ready access.



Two powerful spindles

The two powerful motor-spindles guarantee particularly efficient metal cutting. Main and counter spindles have identical design and are cooled with liquids. The rapid traverse of the counter spindle is 60 m/min (C100).

- C100:
ø 42 mm: 7000 rpm
- C200:
ø 65 mm: 5000 rpm
ø 90 mm: 3500 rpm

Three turrets with 42 stations

The large tool stock including 3 x 14 stations and the patented INDEX W-type serration guarantee short setup times even with small lot sizes. The extremely high dynamics and the quick turret indexing lower the chip-to-chip times.

- Only the tool currently in use is driven – at full metal-cutting performance
- **Siemens Control**
- C100: 8000 rpm, 6.2 kW
- C200: 8000 rpm, 10 kW
- **FANUC Control**
- C100: 6000 rpm, 4.2 kW
- C200: 6000 rpm, 4.5 kW

Two Y axes for optimum division of work

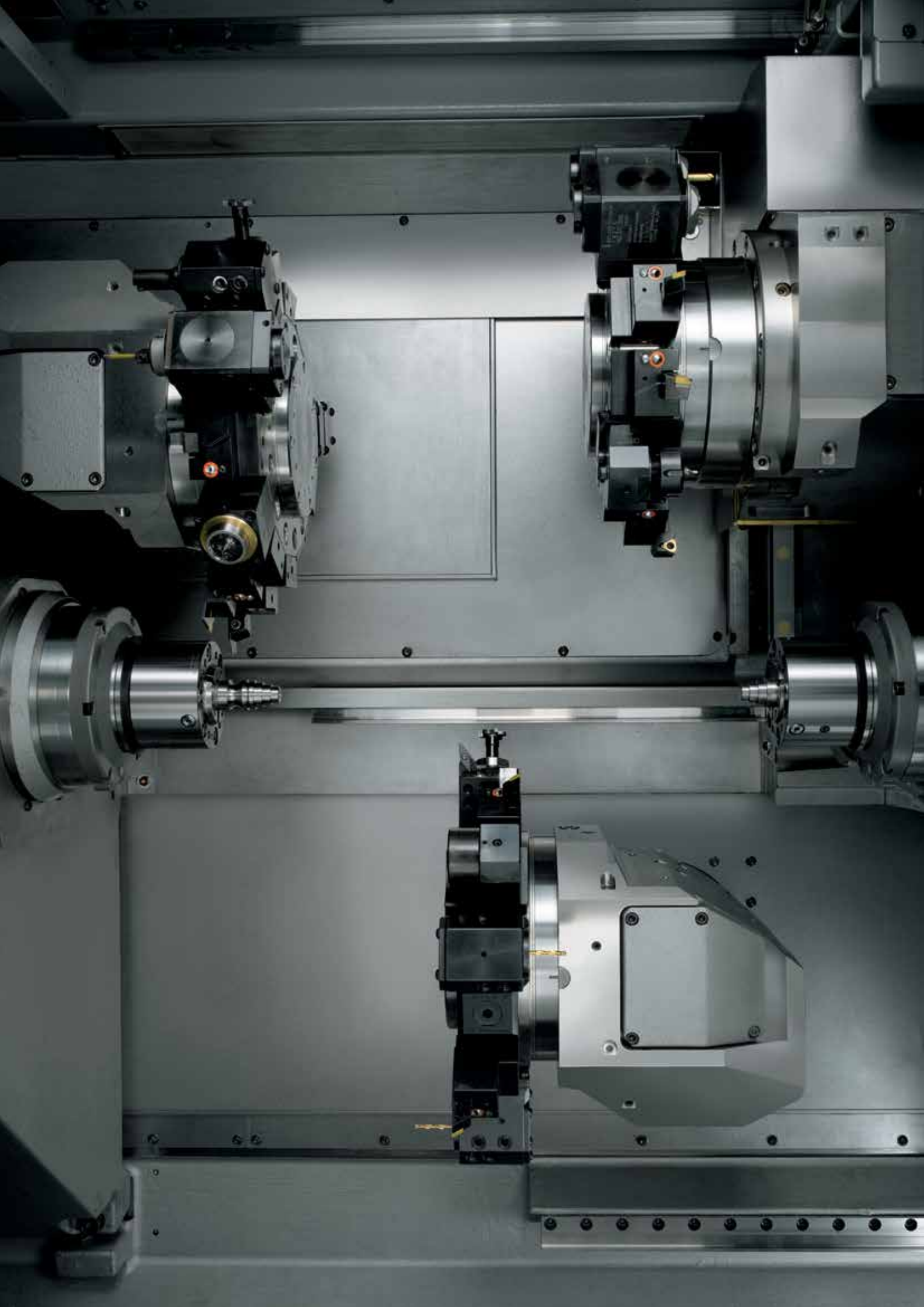
2 Y axes at the main spindle or 1 each at the main and counter spindles are possible. This allows an optimum division even of complex operations and a reduction of cycle times.

- Simultaneous machining on both spindles
- C100: 70 mm Y axis travel
- C200: 100 mm Y axis travel
- Stable quill guide

Integrated handling system for parts removal

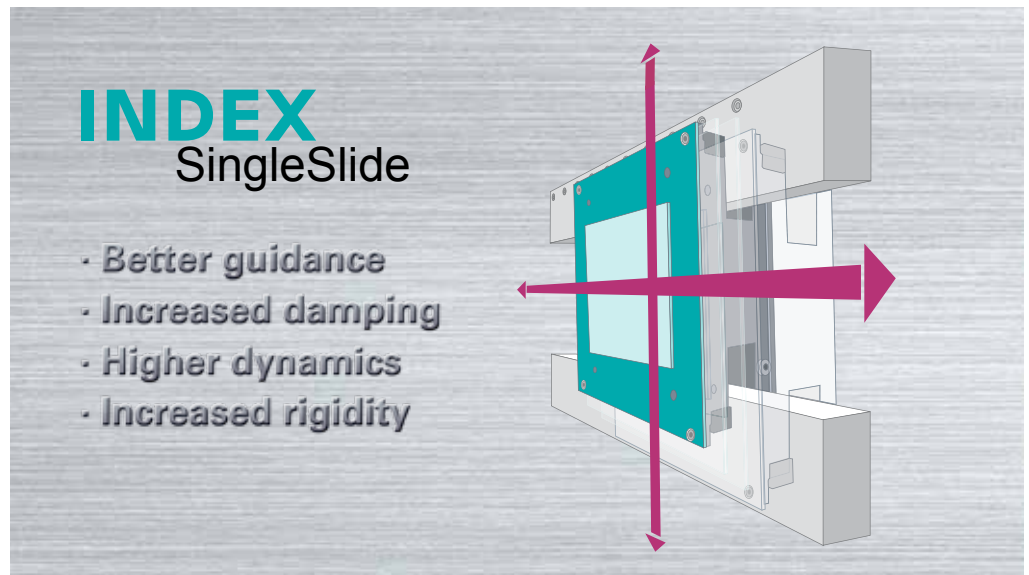
The integrated gantry-type removal unit guarantees quick workpiece removal without damage to the workpiece. In addition, the bar remnant can be removed separately from the main spindle.

- Removal of workpiece / remnant possible on main and counter spindles
- Rapid traverse 100 m/min



INDEX SingleSlide: Better and clearly faster machining

The market is requesting production turning machines that provide shorter cycle times, higher tool lives and work more economically. The INDEX C100 and C200 meet these requirements to a high degree. With INDEX SingleSlide, a new slideway with two degrees of freedom in one plane, the INDEX C100 and C200 have many advantages compared with conventional machines.



Advantages



Higher workpiece quality

INDEX SingleSlide is an innovative slideway composed of guide strips with wear- and friction-reduced coating and hardened and surface-treated guide plates.



Longer tool lives

The INDEX SingleSlide concept substantially increases the damping properties compared with conventional systems. Superior properties resulting in further advantages, such as tool lives increased by up to 30 % and higher surface quality.



Higher rapid traverses and accelerations

The turret slides move on flat innovative slideways in the X and Z directions. The two directions of movement are in one traversing plane. The low weight of the single-piece cross slide makes it possible to reach rapid traverses of up to 60 m/min and accelerations of up to 1g.



Higher metal-cutting performance

In conventional linear guideways, it is customary for one drive to support the other one. This differs from the INDEX SingleSlide. Two degrees of freedom in one plane of movement produce high rigidity, thus guaranteeing maximum metal-cutting performance.



Clever cooling

The INDEX C100 and C200 production turning machines are convincing with a well thought-through cooling concept. Lost heat that is generated in the spindles, the hydraulic unit and the switching cabinet is discharged via a central fluid circuit from

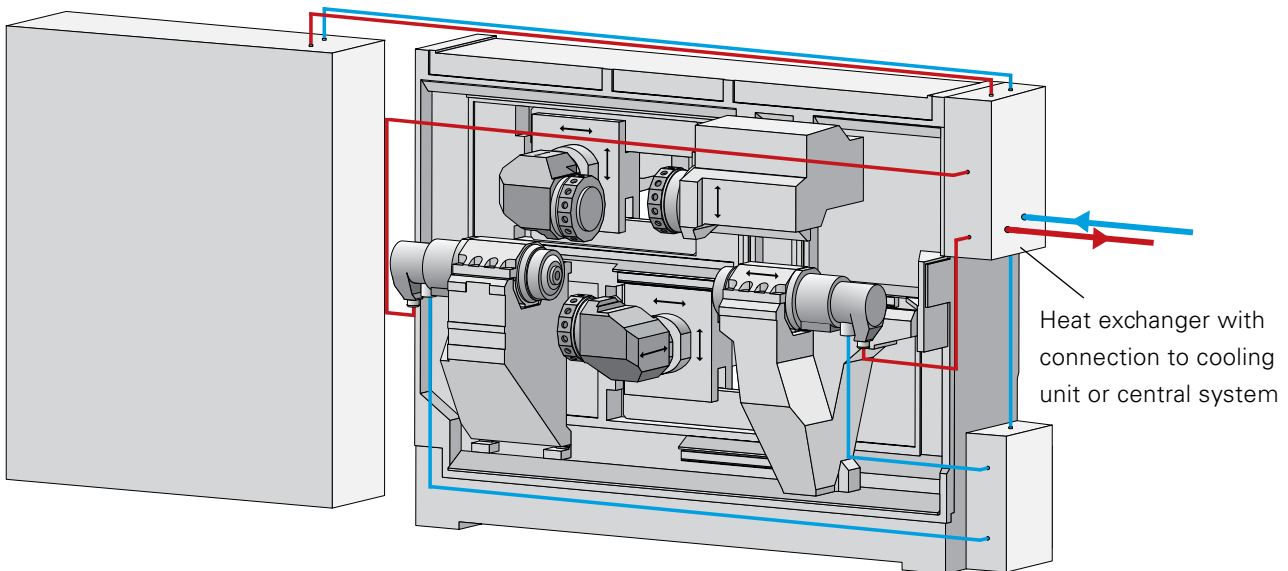
the machine. The energy is bound in one single medium and not given off to the surrounding area of the machine.

The discharge: locally or centrally

The innovation from INDEX: You decide which cooling

concept you want to use. The design of the INDEX C100 and C200 with an integrated water interface permits two solutions for conducting heat: either the connection to a local cooling unit or to a central system. This means that you can

adapt the machine ideally to your production environment. Irrespective of which variant you choose, optimum cooling will be achieved at all times.



High manufacturing precision

Using a consistent cooling concept, spindles, hydraulics and switching cabinet are cooled. The heat energy is discharged effectively, and the temperature stability is improved. In this way, a precise and reliable machining process is supported.

Improved working climate

It is also advantageous that the cooling can be done away from the production. The noise and heat emissions are thus minimized, and your staff are not subject to stress unnecessarily.

Safe investment

Whether centralized or decentralized, the cooling concept of the INDEX C100 and C200 is cost-effective at all times. You decide which variant matches your production environment best. The solution on the basis of a central system offers the advantage that more than one machines can be connected.

Higher reliability

The innovative construction makes it possible to do without components that used to be customary with conventional cooling principles, such as fans and temperature sensors. This enhances availability and increases profitability. The space required is also reduced.



The control – New – Fast – Optimal

New

The control concept of the INDEX C100/C200 consistently relies on the new Siemens S840D sl (Solution Line) control and the new generation Siemens SINAMICS drive. This ensures a future-proof investment: the user gets the latest generation of control technology that supports any type of application. Also the use of Virtual Line for programming support (VPro) or simulation (VM) is now easily possible directly on the control screen! This saves time and cost!

Fast

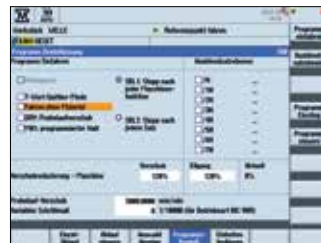
The consistent use of the performance-enhanced S840D solution line control ensures uncompromising short execution times for all types of machining operations. Combined with axis accelerations up to 10 m/s³ (1 g) and rapid traverse rates up to 60 m/min, the C100 and C200 are designed for uncompromising productivity. In addition, the patented INDEX SingleSlide system provides at any time for optimal guidance and superior damping – and unmatched low tooling costs.

Optimal

The new INDEX C200 sl control, enhanced by INDEX with intelligent machine functions, optimally supports simultaneous machining operations with multiple tool carriers. For example, the new control facilitates also directly the loading of new workpieces, for example. In combination with INDEX machine cycles, this creates optimized machining processes in minimal time – a truly added value of the machine. This is all inclusive machining efficiency!

Complete

All INDEX C100 and C200 machines come with extensive control equipment: TRANSMIT (front side) and TRACYL (peripheral surface) machining included. This allows programming and executing milling and drilling operations either with the real axes on tool carrier 1 or 2 or with control transformation in the X/Y plane. INDEX C100/C200 with the new C200 sl control – automatic bar lathe and turning center in one – complete from the factory!



Advanced

- 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
- More than 20 foreign languages

Efficient

- Positions and movements of all axes and spindles in the home screen (INDEX)
- Largely unchanged machine operation and key arrangement (INDEX)
- Practical machine cycles for safe and collision-free machine operation
- Supported re-entry after program termination
- Internal calculation accuracy better than nano-interpolation (80 bit floating point arithmetic)
- All displays and operating inputs in clear text

Productive

- The latest generation of control for maximum quality and productivity
- Comprehensive technology cycles for error-free and optimal machining quality
- Fast and safe job change by automatic saving of setup data and automatic re-initialization at (re-)selection of the job
- INDEX Virtual Machine & VPro programming studio for programming, setup, optimizing on a PC (option) or on the machine control panel (option)

Safe

- Safe machine start by start requirements and guided return to the machine home position
- Direct access to tool offsets, program parameters, etc. via individual keys
- Supported machine operation through backlighting of active control buttons
- Safety Integrated Inside: Continuous safety monitoring and testing integrated in the control
- INDEX tool breakage monitoring available



The control: simple and well-known – the FANUC standard

FANUC Control 31i-Model B – the future-proof standard control

All advantages at a glance:

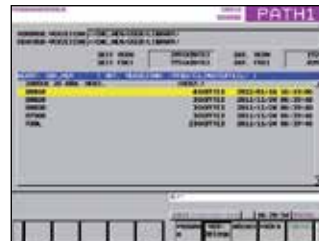
- Control of the latest FANUC series (30-Series, Model B)
- FANUC control panel with CNC keyboard and 10.4" TFT color display
- Original FANUC machine control panel with axis and spindle override
- Electronic handwheel integrated in machine control panel (standard)

- Memory for 1000 part programs or more
- File system with 3 levels (folders) for structured program storage
- USB interface and CARD reader at the control panel
- Advanced operator safety by FANUC Dual Check Safety

INDEX enhancements and additions

- Individual keys on the control panel with direct access to the following functions:
 - Turret indexing / Single station (CCW/CW)
 - Setup / Production (key switch removable in "Production" position)
 - Cycle Start / Cycle Stop
 - Consent function
 - Open workpiece clamping

- INDEX-specific enhancements of the user interface for easier machine operation, program and parameter input, machine monitoring
- Sensorless tool monitoring based on motor current
- Freely programmable interface for adjusting external (automation) devices to the machine (e.g., handling system)



Programming

- Text editor with Insert, Overwrite, Find, Replace, Copy, and Delete functions
- Annotating NC programs
- NC program numbers or NC program names
- Up to 3 M functions possible per NC block
- Dwell time in seconds
- Conditional or unconditional program branching
- Arithmetic and trigonometric computing operations
- Parameter calculation and reading/loading of system data

Technology

- Standard cycles for turning and milling
- Cutting longitudinal, transverse and tapered threads with constant or variable pitch
- Threading without compensating chuck (up to $n_{max} = 2000$ rpm)
- TRANSMIT and cylinder surface interpolation
- Oriented spindle stop
- Minimum input/output unit 0.0001 mm or 0.00001"
- Handwheel-controlled travel movements

Program input/output

- Program input via control keyboard
- USB port
- Memory card
- ETHERNET-interface
- Input switchable between metric/inch for
 - Program entry
 - Programmed travel movements
 - Tool offsets
 - Screen display
- Two-channel program display and two-channel editor (depending on machine equipment level)

Production

- Absolute measuring systems in all axes, i.e. no referencing required
- Electronic tool offset in X, Z
- Total number-of-parts counter
 - Counter for setting the order batch size
- Tool breakage monitoring (option)

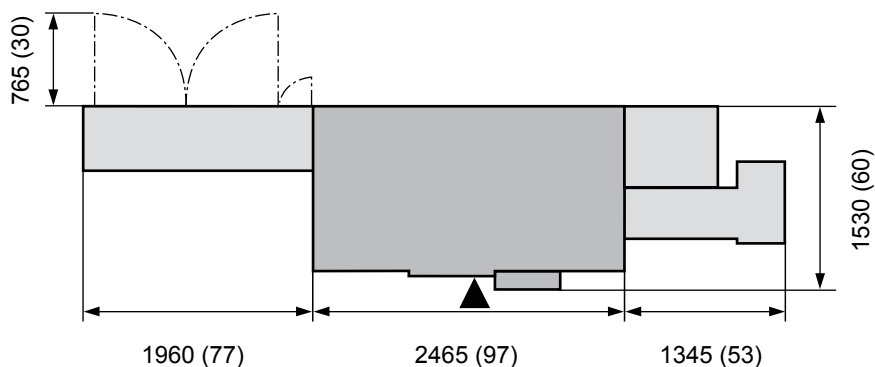
INDEX C200



The control panel includes a red emergency stop button, a yellow start button, a rotary selector knob, and a numeric keypad with function keys.

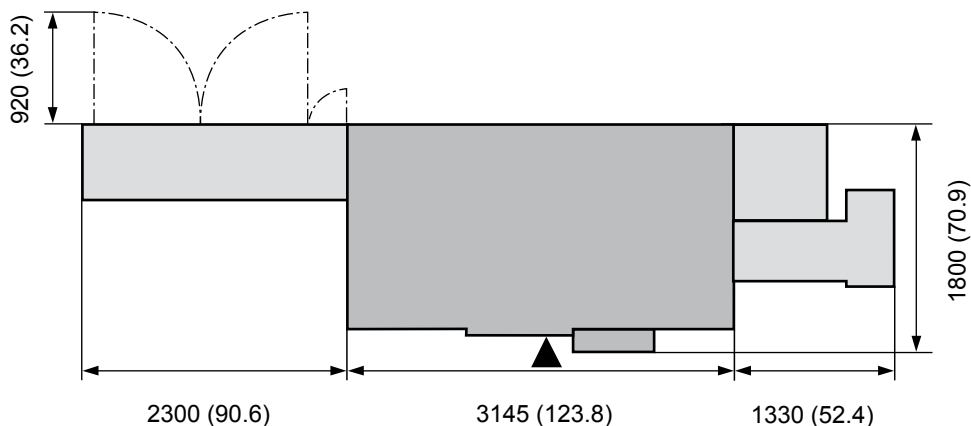
Technical data C100

		Siemens		FANUC	
Working area					
Distance main and counter spindles	mm (inch)	515 (20.3)		515 (20.3)	
Main spindle					
Bar capacity	mm (inch)	42 (1.7)		42 (1.7)	
Speed	rpm	7000		7000	
Power at 100%/40%	kW (hp)	25/29 (33.5/38.9)		25/29 (33.5/38.9)	
Torque at 100%/40%	Nm (ft lbs)	49/65 (36.2/48)		49/65 (36.2/48)	
Chuck diameter	mm (inch)	110 (4.3)		110 (4.3)	
Spindle head ISO 702/1	size	A5		A5	
C axis resolution	degrees	0.001		0.001	
Counter spindle					
Bar capacity	mm (inch)	42 (1.7)		42 (1.7)	
Speed	rpm	7000		7000	
Power at 100%/40%	kW (hp)	16.5/19 (22.1/25.5)		16.5/19 (22.1/25.5)	
Torque at 100%/40%	Nm (ft lbs)	32/43 (23.6/31.7)		32/43 (23.6/31.7)	
Chuck diameter	mm (inch)	110 (4.3)		110 (4.3)	
Spindle head ISO 702/1	size	A5		A5	
C axis resolution	degrees	0.001		0.001	
Counter spindle slide					
		Z		Z	
Slide travel	mm (inch)	505 (19.9)		505 (19.9)	
Rapid traverse	m (inch) / min	60 (2360)		60 (2360)	
Turret					
Number of stations		14	10	14	10
Tool system DIN 69880	mm (inch)	20 x 40 (0.8 x 1.6)	25 x 48 (1 x 1.9)	20 x 40 (0.8 x 1.6)	25 x 48 (1 x 1.9)
Tool drive speed	rpm	8000	8000	6000	6000
Power at 25%	kW (hp)	6.2 (8.3)	6.2 (8.3)	4.2 (5.6)	4.2 (5.6)
Torque at 25%	Nm (ft lbs)	11 (8.1)	11 (8.1)	11 (8.1)	11 (8.1)
Tool carrier 1 (top left)					
		X	Z	Y	X Z Y
Slide travel	mm (inch)	70 (2.8)	250 (9.9)	70 (2.8)	70 (2.8) 250 (9.9) 70 (2.8)
Rapid traverse	m (inch) / min	30 (1180)	60 (2360)	15 (590)	30 (1180) 60 (2360) 15 (590)
Tool carrier 2 (bottom)					
		X	Z	Y	X Z Y
Slide travel	mm (inch)	70 (2.8)	400 (15.8)	70 (2.8)	70 (2.8) 400 (15.8) 70 (2.8)
Rapid traverse	m (inch) / min	30 (1180)	60 (2360)	15 (590)	30 (1180) 60 (2360) 15 (590)
Tool carrier 3 (optional top right)					
		X			X
Slide travel	mm (inch)	125 (4.9)			125 (4.9)
Rapid traverse	m (inch) / min	30 (1180)			30 (1180)
Workpiece discharging unit					
Workpiece weight	kg (lbs)	2.5 (5.5)		2.5 (5.5)	
Weight and connecting power with maximum configuration					
Weight	kg (lbs)	5500 (12125)			
Connecting power		57 kW, 68 kVA, 97 A, 400 V, 50/60 Hz			
Control		INDEX C200 sl (based on Siemens S840D sl)		FANUC 31i-B	



Technical data C200

		Siemens		FANUC	
Working area					
Distance main and counter spindles	mm (inch)	710 (30)		710 (30)	
Main spindle					
Bar capacity	mm (inch)	65 (2.6)	90 (3.5)	65 (2.6)	
Speed	rpm	5000	3500	5000	
Power at 100%/40%	kW (hp)	31.5/32 (42.3/43)	29/40 (38.9/53.6)	20/24 (26.8/32.2)	
Torque at 100%/40%	Nm (ft lbs)	125/170 (92.2/125.4)	142/207 (104.8/152.8)	135/190 (99.6/140.1)	
Chuck diameter	mm (inch)	160 (6.3)	-	160 (6.3)	
Spindle head ISO 702/1	size	140 mm (5.5 inch)	A8	140 mm (5.5 inch)	
C axis resolution	degrees	0.001	0.001	0.001	
Counter spindle					
Bar capacity	mm (inch)	65 (2.6)	90 (3.5)	65 (2.6)	
Speed	rpm	5000	3500	5000	
Power at 100%/40%	kW (hp)	20/24 (26.8/32.2)	23/31 (30.9/41.6)	20/24 (26.8/32.2)	
Torque at 100%/40%	Nm (ft lbs)	135/190 (99.6/140.1)	116/155 (85.6/114.3)	135/190 (99.6/140.1)	
Chuck diameter	mm (inch)	160 (6.3)	-	160 (6.3)	
Spindle head ISO 702/1	size	140 mm (5.5 inch)	A8	140 mm (5.5 inch)	
C axis resolution	degrees	0.001	0.001	0.001	
Counter spindle slide					
		Z		Z	
Slide travel	mm (inch)	700 (27.6)		700 (27.6)	
Rapid traverse	m (inch) / min	50 (1969)		50 (1969)	
Turret					
Number of stations		14	10	14	10
Tool system DIN 69880	mm (inch)	25 x 48 (1 x 1.9)	30 x 55 (1.2 x 2.2)	25 x 48 (1 x 1.9)	30 x 55 (1.2 x 2.2)
Tool drive speed	rpm	8000	8000	6000	6000
Power at 25%	kW (hp)	10 (13.4)	10 (13.4)	4.5 (6.0)	4.5 (6.0)
Torque at 25%	Nm (ft lbs)	16 (11.8)	16 (11.8)	16 (11.8)	16 (11.8)
Tool carrier 1 (top left)					
		X	Z	Y	X Z Y
Slide travel	mm (inch)	110 (4.3)	320 (12.6)	100 (4)	110 (4.3) 320 (12.6) 100 (4)
Rapid traverse	m (inch) / min	30 (1180)	50 (1969)	15 (590)	30 (1180) 50 (1969) 15 (590)
Tool carrier 2 (bottom)					
		X	Z	Y	X Z Y
Slide travel	mm (inch)	110 (4.3)	550 (21.7)	100 (4)	110 (4.3) 550 (21.7) 100 (4)
Rapid traverse	m (inch) / min	30 (1180)	50 (1969)	15 (590)	30 (1180) 50 (1969) 15 (590)
Tool carrier 3 (optional top right)					
		X			X
Slide travel	mm (inch)	180 (7.1)			180 (7.1)
Rapid traverse	m (inch) / min	30 (1180)			30 (1180)
Workpiece discharging unit					
Workpiece weight	kg (lbs)	3.5 (7.7)		3.5 (7.7)	
Weight and connecting power with maximum configuration					
Weight	kg (lbs)	9000 (19841)			
Connecting power		72 kW, 84 kVA, 122 A, 400 V, 50/60 Hz			
Control		INDEX C200 sl (based on Siemens S840D sl)		FANUC 31iB	



Advantages that everybody benefits from

The investor

- Optimum use of the production area through extremely compact machine in combination with minimum space requirements
- Up to 30 % lower tool costs
- Quick pay-off through high dynamics and productivity
- Minimum cycle times
- Complete machining, no transportation times and non-productive times

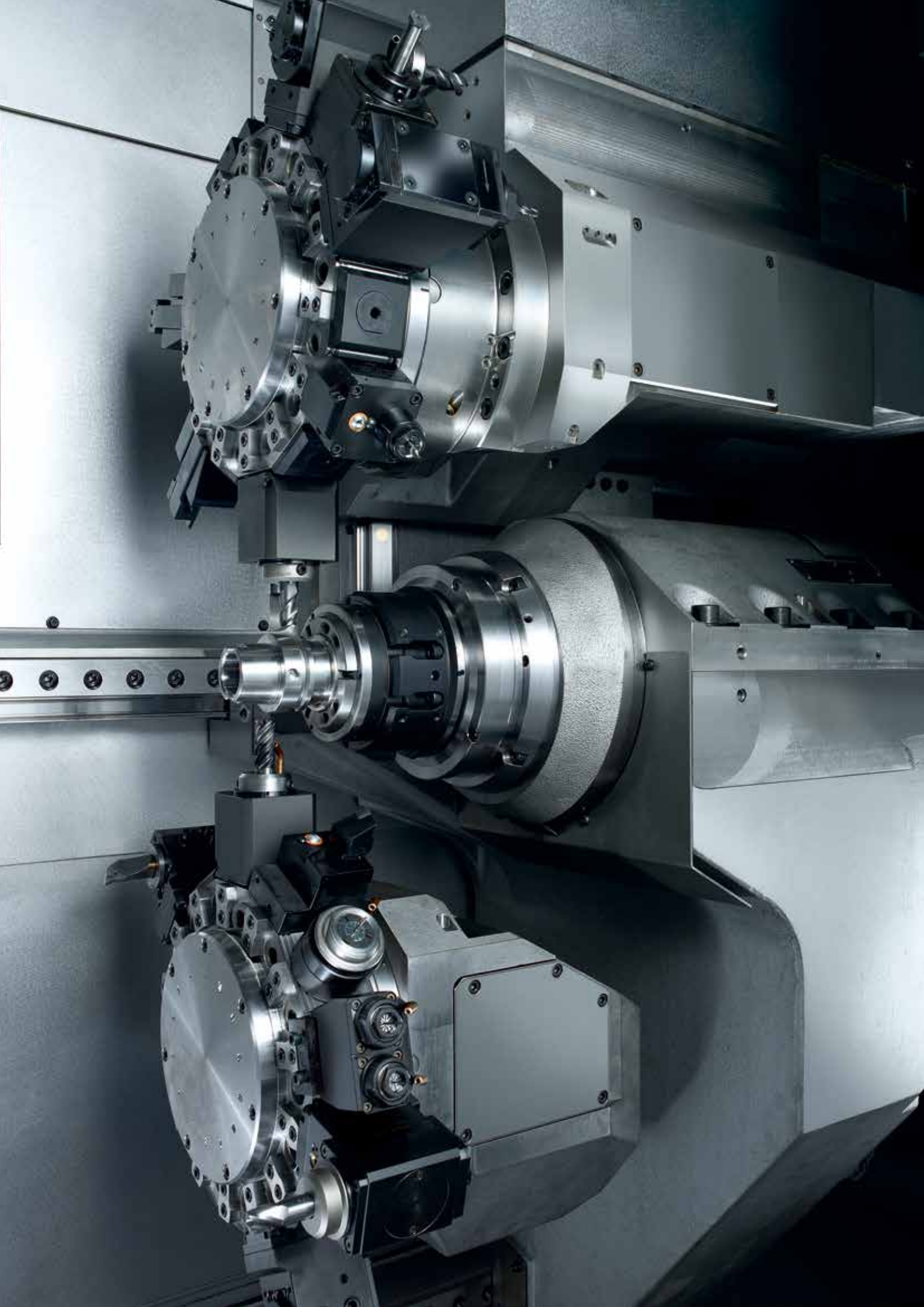


Production planning and job preparation

- Setup times reduction through large tool stock
- Simultaneous use of 3 tools for maximum productivity
- Powerful motor spindles allow large metal-cutting volume
- Minimal non-productive times through high rapid traverses and quick turret indexing
- A wide range of options, owing to 2 Y axes and powerful tool drives

Production, manufacture and maintenance

- Easy and user-friendly programming
- Working area with optimum access
- INDEX W-type serration for quick changeover
- Clearly structured arrangement of the tool carriers for short setup times
- Optimum access from all sides through parallel arrangement of the switch cabinet, relative to the bar feed



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