

# ***C100, C200***

*Production turning machine  
for highly productive bar machining*

# INDEX



*better.parts.faster.*

## The power packs for high-speed machining

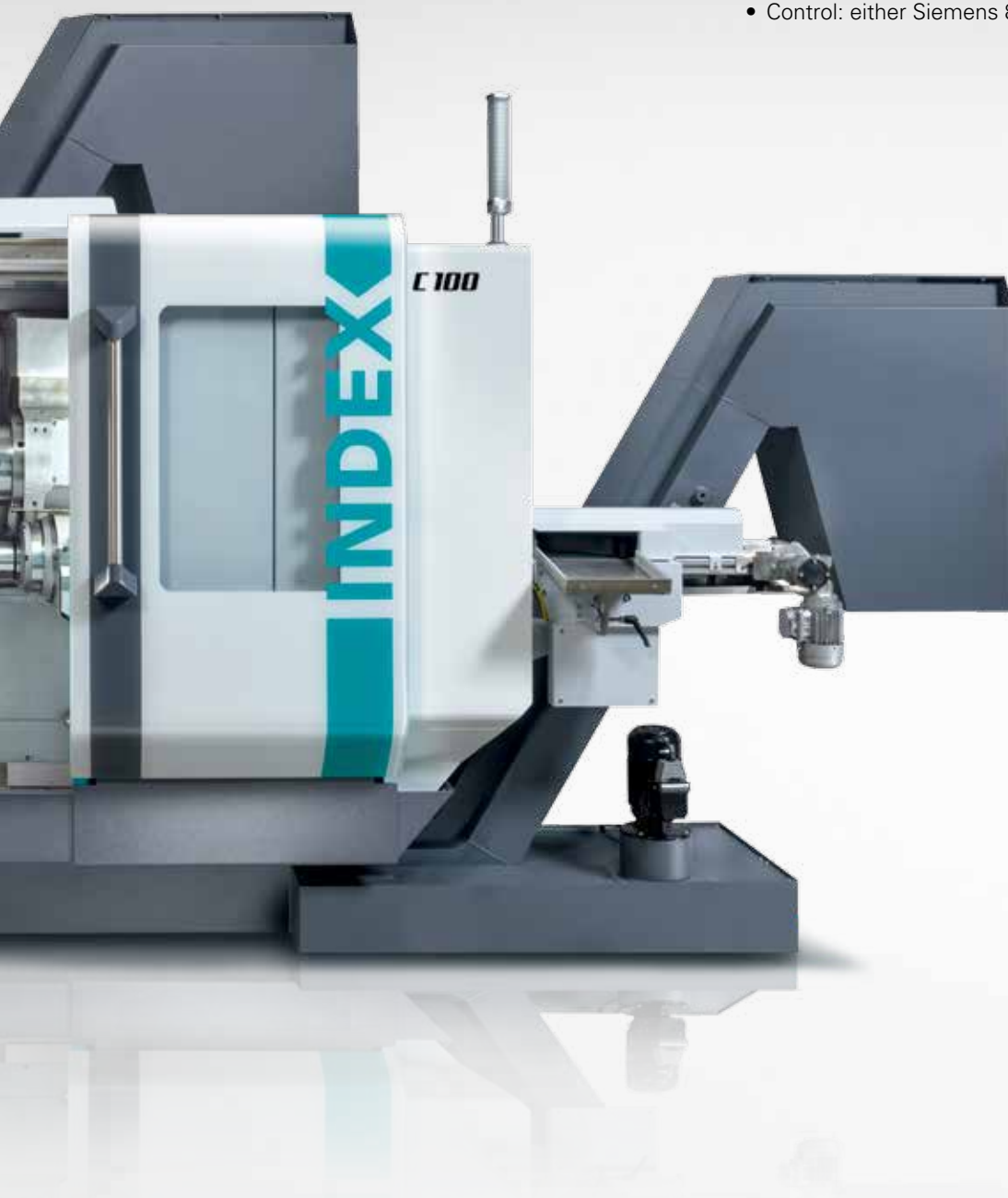
With the INDEX C100 and C200 production turning machines, new opportunities open up for high-speed production of parts turned from bar stock. Despite their

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 INDEX SingleSlide guide system ensures very high dynamic response with optimum vibration damping. This has a very positive effect on workpiece quality and

tool life, with simultaneously reduced cycle times.



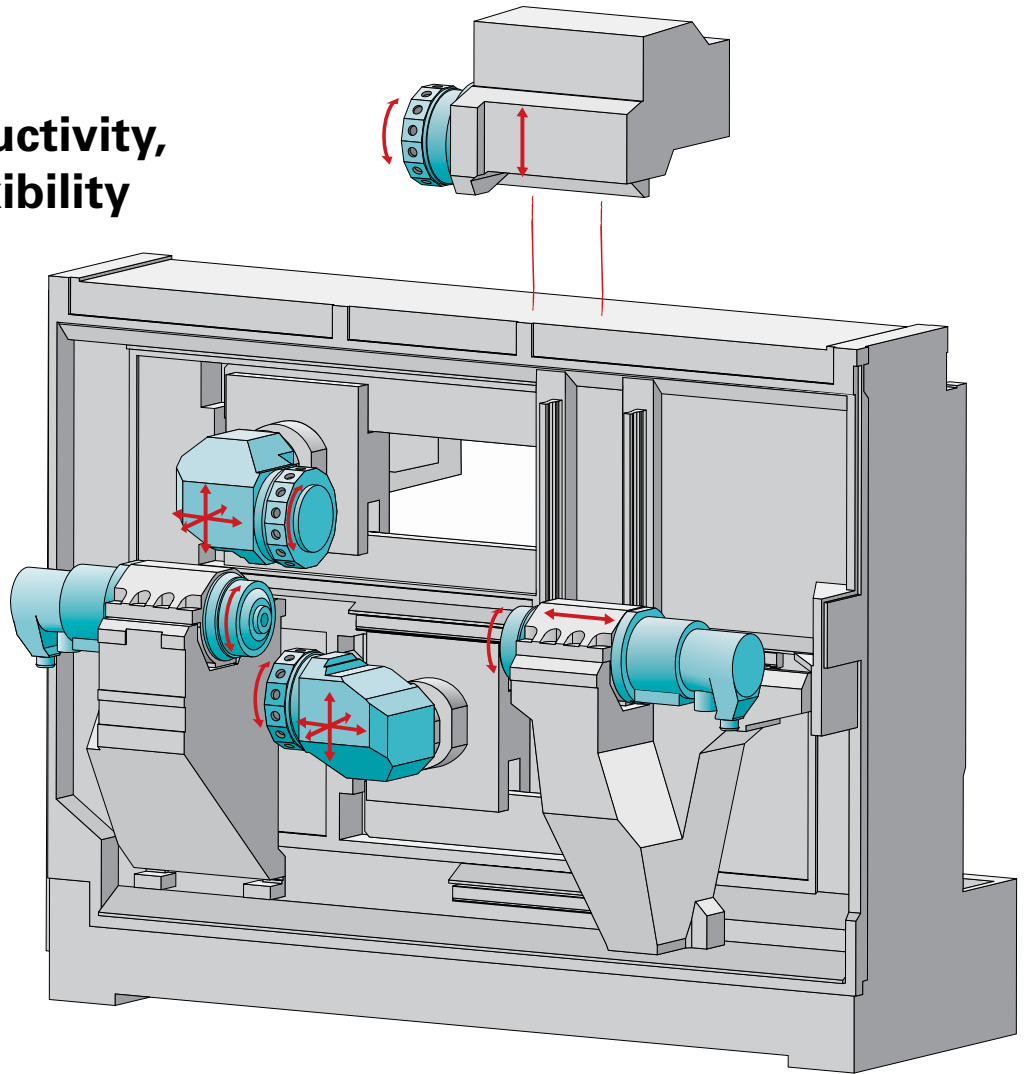


#### **The machine concept**

- Clearly structured and well-developed ergonomic work area concept
- Bar capacity C100: 42 mm / C200: 65 or 90 mm
- 2 powerful motor spindles identical in construction
- Maximal part diversity through 3 turrets and 42 tools
- High-quality backworking
- High acceleration (1g) and high rapid traverses (60 m/min)
- Quick turret indexing
- Simultaneous machining with 2 or 3 turrets
- Machining with bottom turret at main and counter spindles possible
- Very good vibration damping through INDEX SingleSlide
- Control: either Siemens 840D sl or Fanuc 31i-B

## 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).

### Three turrets with 42 stations

The large tool stock including max. 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.

### 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.

### 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.

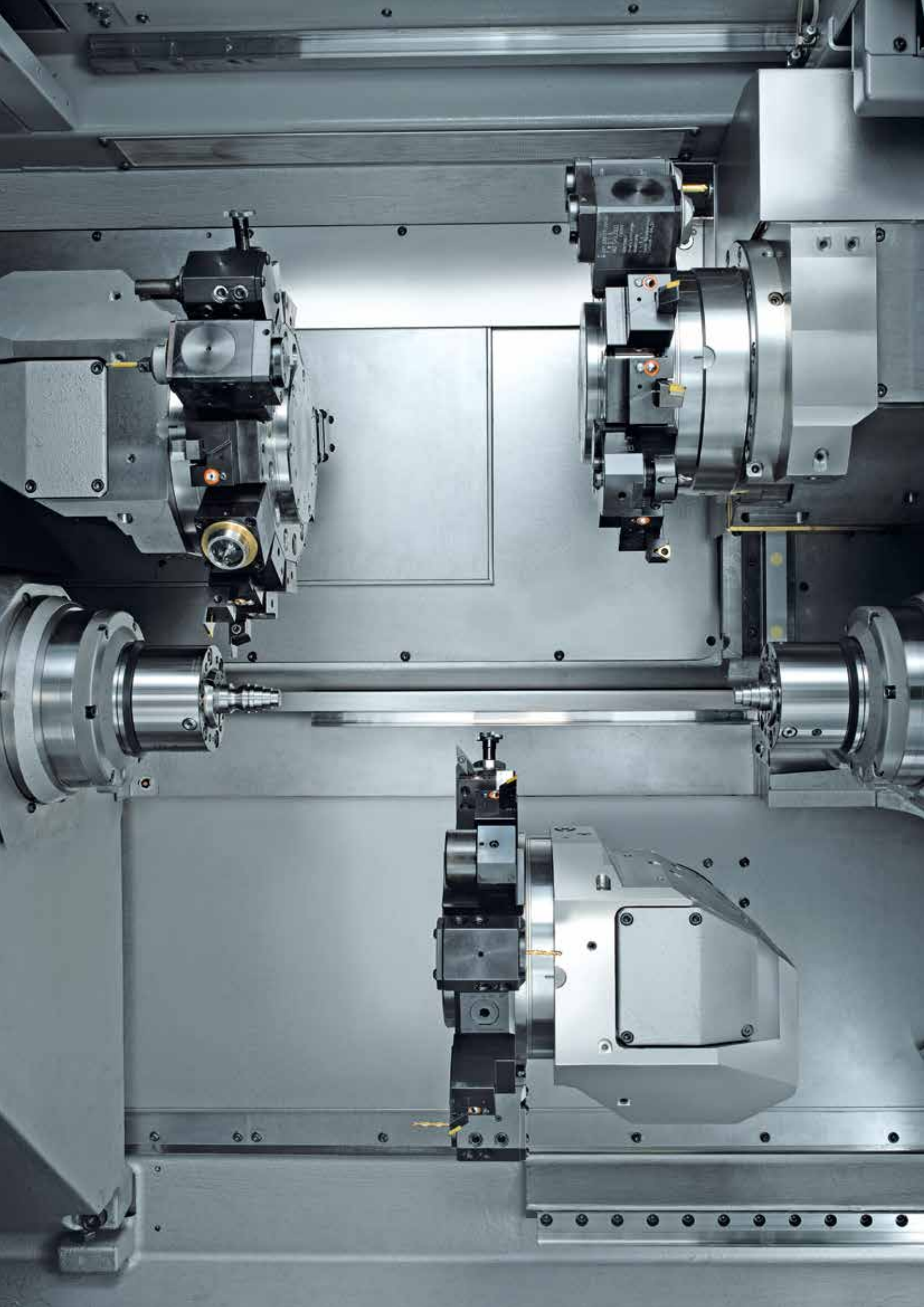
- C100:  
ø 42 mm: 7000 rpm
- C200:  
ø 65 mm: 6000 rpm  
ø 90 mm: 3500 rpm

- Only the tool currently in use is driven – at full metal-cutting performance
- C100: 8000 rpm, 6.2 kW
- C200: 8000 rpm, 10 kW

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

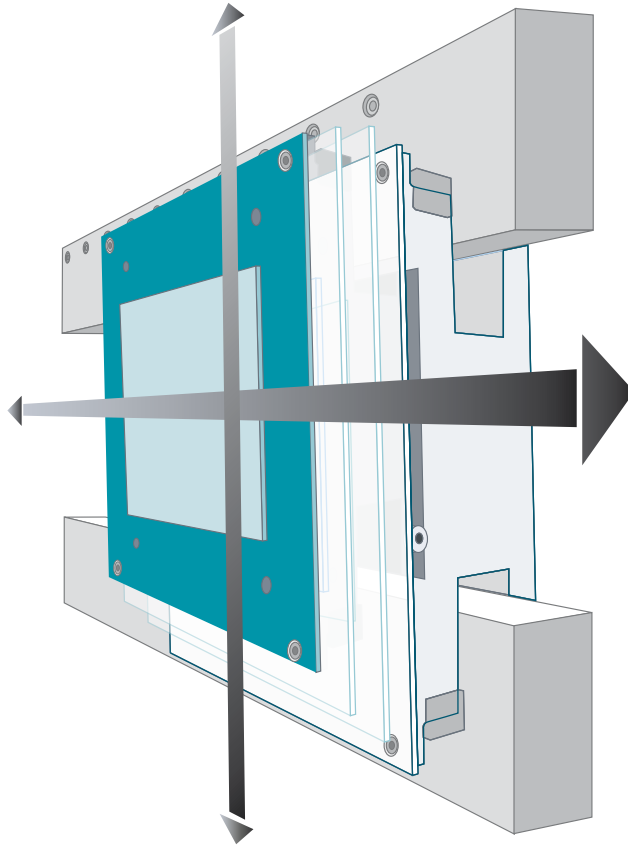
- Removal of workpiece / remnant possible on main and counter spindles
- Rapid traverse 100 m/min





## 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, 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 because of better guidance

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 because of increased damping

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 because of higher dynamics

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 because of increased rigidity

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.





## With intelligent cooling concept: efficient use of energy

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.

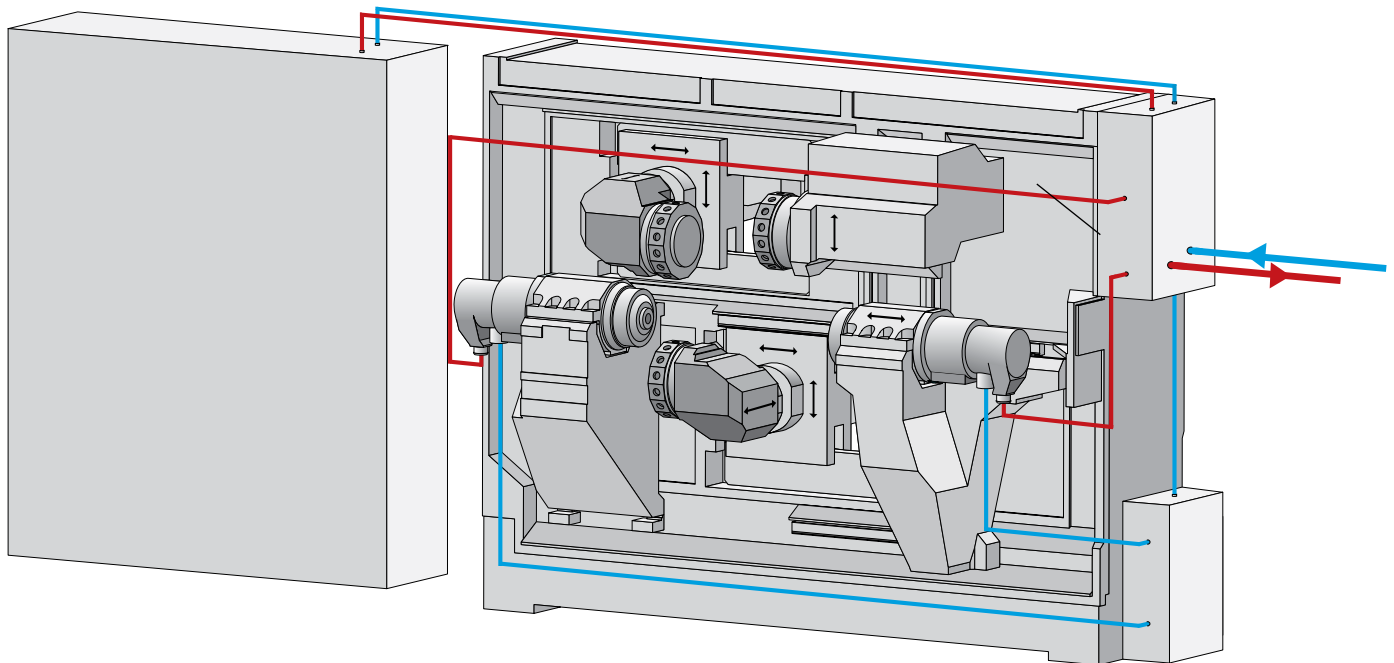
The discharge:  
locally or centrally.

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.

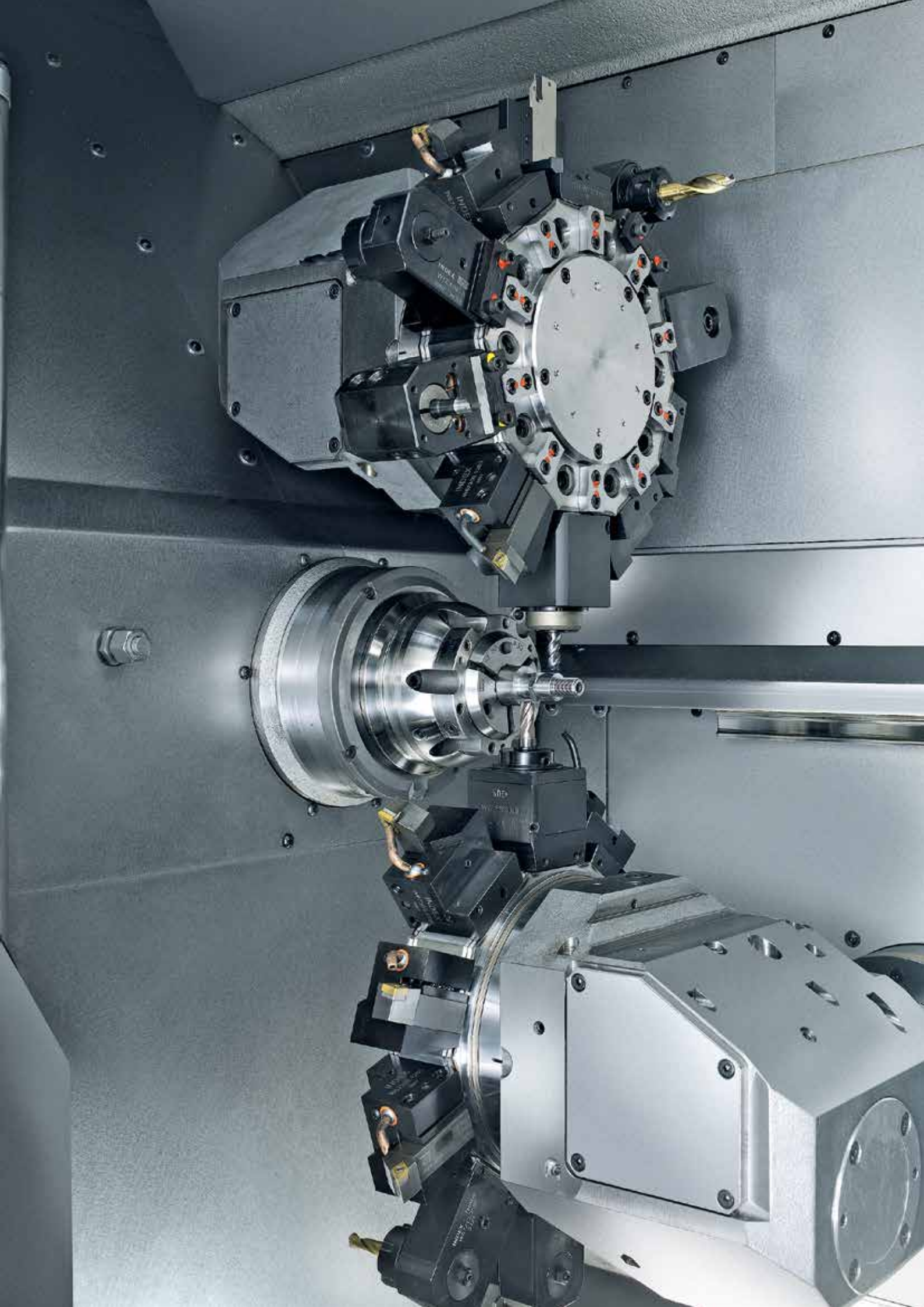
### Safe investment

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 machine 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.





## Robot cell *Xcenter*

### Intelligent automation – even more flexibility and efficiency

With the optional robotic cell iXcenter, blanks and/or finished parts can be supplied and discharged quickly, safely and flexibly. The robot cell is integrated ergonomically into the machine. It can be moved easily to the right during the setup process, allowing unobstructed access to the work area. During production, the iXcenter is fixed in front of the machine's work area. The robot then accesses the work area via the sliding guard of the machine, which opens automatically behind the robot cell.



#### Ready to Go

- 6-axis robot for up to 7.5 kg payload with integrated gripper control
- Double gripper included in the standard
- 22 pallets (without work-piece-specific inlays) are included in the standard
- Easy in-house relocation

#### Using more potentials

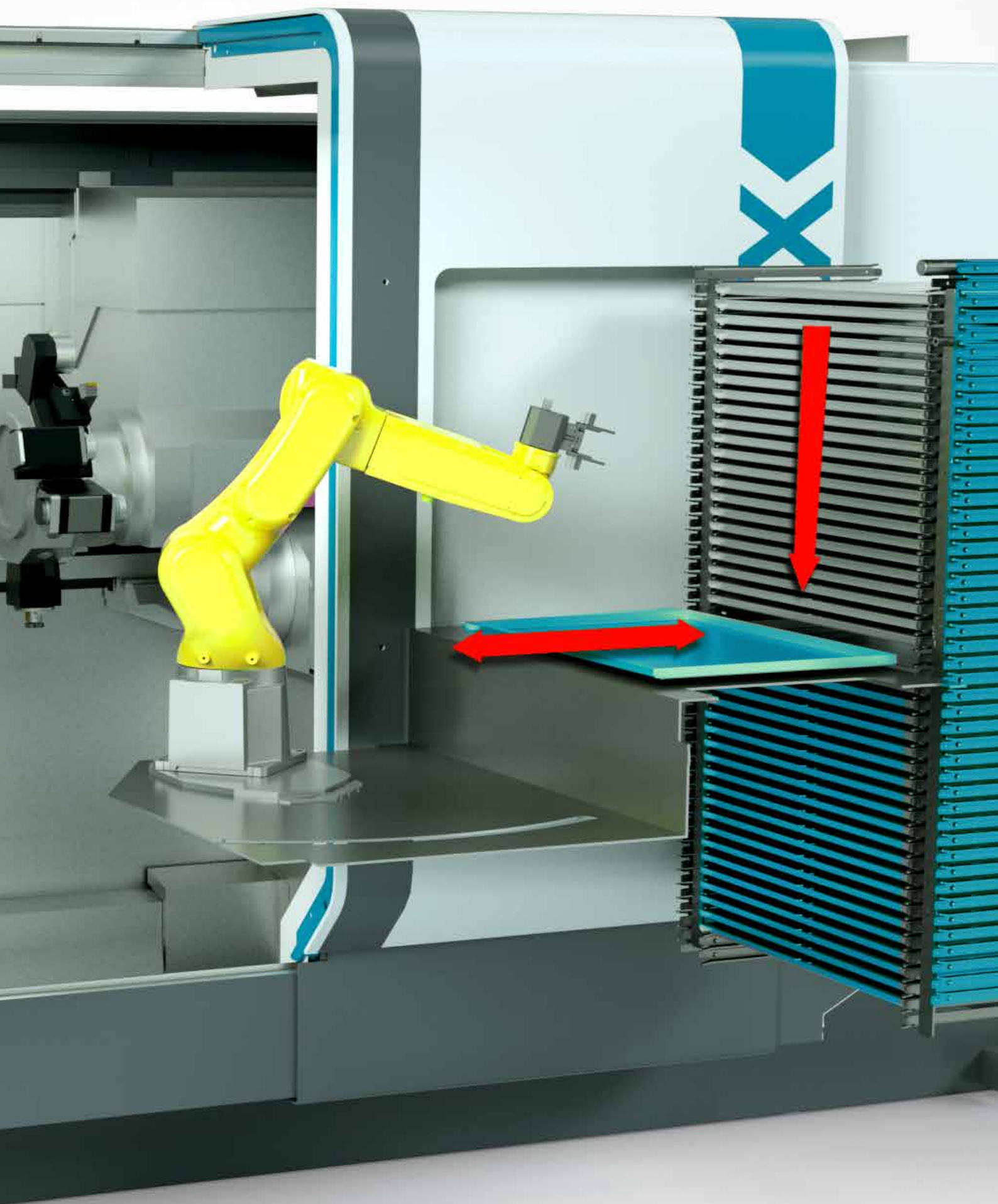
Subsequent processes such as cleaning, measuring, deburring etc. can be integrated in the robot cell.

#### Simply good handling of blanks and finished parts

- Space-saving vertical storage with up to 22 pallets stacked up
- Pallet size 600 x 400 mm
- Minimal pallet height 25.4 mm
- Pallets with blanks are loaded at the bottom, pallets with finished parts are removed at the top – at any time without interrupting production
- Pallets are inserted/removed by the robot
- Easy macro-programming







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

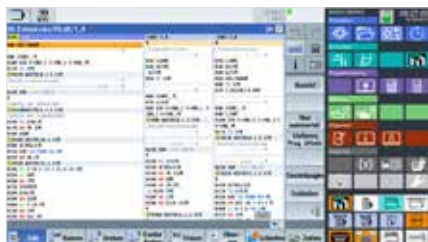


### Focus on production and control – Industry 4.0 included.

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. 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.

Maximum performance through comprehensive technology cycles and programming screens, e.g., for optimum turning, milling and drilling, especially when using several tools simultaneously.

### 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 drawings, setup lists, programming tools, documentations.

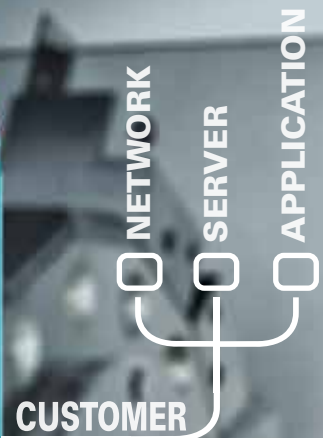
### Virtual & open.

With the optional VPC box (industrial PC), iXpanel opens up the world of Virtual Machine with the 3 operating modes

- CrashStop
- RealTime mode
- Independent simulation (VM on board) directly on the control.

Thanks to the VPC box, the machine can be integrated into your IT structure without restrictions.





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

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

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

### All advantages at a glance:

- Control of the latest FANUC series (31iB)
- FANUC control panel with CNC keyboard and 15" touchscreen monitor
- Original FANUC machine control panel with axis and spindle override
- Electronic handwheel integrated in machine control panel (standard)
- Memory for 1000 part programs
- File system for structured program storage
- USB interface and CARD reader at the control panel
- Advanced operator safety by FANUC Dual Check Safety
- Protection level concept for defined access rights

## 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 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)
- Lateral "INDEX Hotkey" bar for quick navigation



## 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
- Arithmetic and trigonometric computing operations
- Parameter calculation and reading/loading of system data
- Manual Guide i, Workshop Programming (option)

## 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"
- Program sequence with handwheel (option)

## 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
- Three-channel program display and editor

## Production

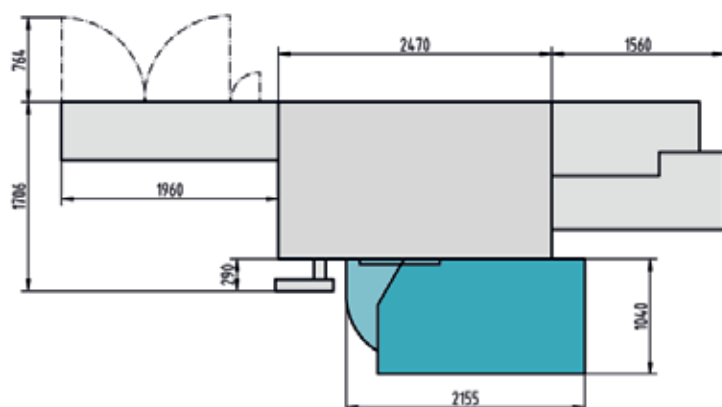
- Absolute measuring systems in all axes, i.e. no referencing required
- Electronic tool offset in X, Z
- Total number-of-parts counter
  - Counter for setting the order batch size
- Tool breakage monitoring
- Operating data signals
- Warm-up control
- Channel lock for easy run-in of individual channels





# Technical data INDEX 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		VDI 20	VDI 25	VDI 20	VDI 25
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	8000	8000
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
Slide travel	mm (inch)	70 (2.8)	250 (9.9)	70 (2.8)	250 (9.9)
Rapid traverse	m (inch) / min	30 (1180)	60 (2360)	15 (590)	30 (1180)
Tool carrier 2 (bottom)		X	Z	Y	X
Slide travel	mm (inch)	70 (2.8)	400 (15.8)	70 (2.8)	400 (15.8)
Rapid traverse	m (inch) / min	30 (1180)	60 (2360)	15 (590)	30 (1180)
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 (4.4)	2 (4.4)		
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			
Length x Width x Height	mm	5990 x 1706 x 2138			
Control		Siemens S840D sl	FANUC 31i-B		

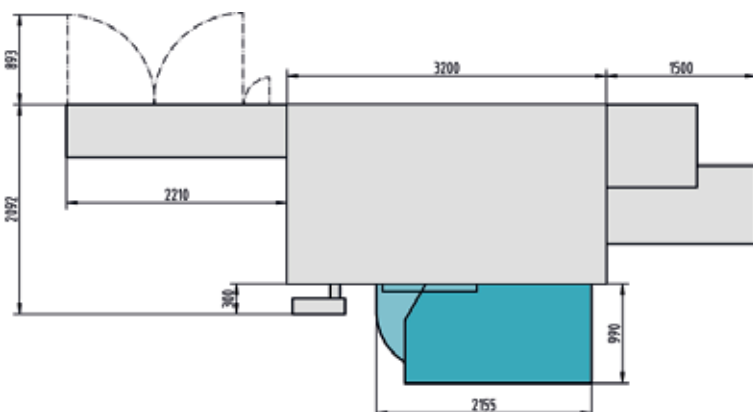




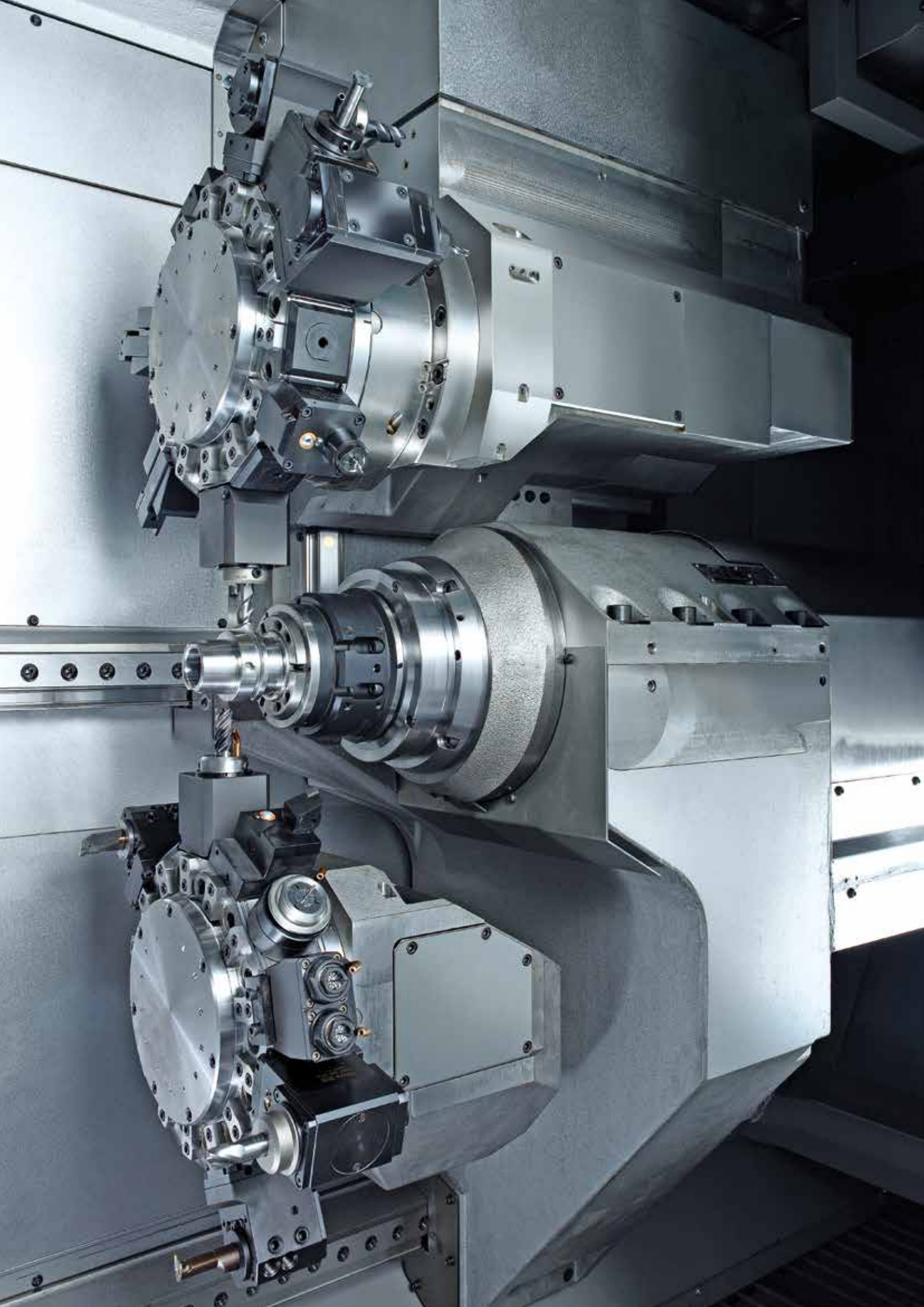


# Technical data INDEX C200

		Siemens		FANUC			
<b>Working area</b>							
Distance main and counter spindles	mm (inch)	710 (30)		710 (30)			
<b>Main spindle</b>							
Bar capacity	mm (inch)	65 (2.6)	90 (3.5)	65 (2.6)			
Speed	rpm	max. 6000	3500	max. 6000			
Power at 100%/40%	kW (hp)	31.5/32 (42.3/43)	29/40 (38.9/53.6)	31.5/32 (42.3/43)			
Torque at 100%/40%	Nm (ft lbs)	125/170 (92.2/125.4)	142/207 (104.8/152.8)	125/170 (92.2/125.4)			
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			
<b>Counter spindle</b>							
Bar capacity	mm (inch)	65 (2.6)	90 (3.5)	65 (2.6)			
Speed	rpm	6000	3500	6000			
Power at 100%/40%	kW (hp)	31.5/32 (42.3/43)	29/40 (38.9/53.6)	31/32 (41.5/43)			
Torque at 100%/40%	Nm (ft lbs)	125/170 (92.2/125.4)	142/207 (104.8/152.8)	125/170 (92.2/125.4)			
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			
<b>Counter spindle slide</b>		<b>Z</b>		<b>Z</b>			
Slide travel	mm (inch)	700 (27.6)		700 (27.6)			
Rapid traverse	m (inch) / min	50 (1969)		50 (1969)			
<b>Turret</b>		<b>VDI 25</b>	<b>VDI 30</b>	<b>VDI 25</b>	<b>VDI 30</b>		
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	8000	8000		
Power at 25%	kW (hp)	10 (13.4)	10 (13.4)	10 (13.4)	10 (13.4)		
Torque at 25%	Nm (ft lbs)	16 (11.8)	16 (11.8)	16 (11.8)	16 (11.8)		
<b>Tool carrier 1 (top left)</b>		<b>X</b>	<b>Z</b>	<b>Y</b>	<b>X</b>	<b>Z</b>	<b>Y</b>
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)
<b>Tool carrier 2 (bottom)</b>		<b>X</b>	<b>Z</b>	<b>Y</b>	<b>X</b>	<b>Z</b>	<b>Y</b>
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)
<b>Tool carrier 3 (optional top right)</b>		<b>X</b>			<b>X</b>		
Slide travel	mm (inch)	180 (7.1)			180 (7.1)		
Rapid traverse	m (inch) / min	30 (1180)			30 (1180)		
<b>Workpiece discharging unit</b>							
Workpiece weight	kg (lbs)	3.5 (7.7)		3.5 (7.7)			
<b>Weight and connecting power with maximum configuration</b>							
Weight	kg (lbs)	9000 (19841)					
Length x Width x Height	mm	6910 x 2092 x 2490					
Connecting power		72 kW, 84 kVA, 122 A, 400 V, 50/60 Hz					
<b>Control</b>		Siemens S840D sl		FANUC 31i-B			







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