TORNOS

High-performance machining centres

CU 2007 / CU 3007

CU 2007
CU 3007

The CU 2007 and CU 3007 are ultra flexible, available in a 3, 4, 5 and 7-axis version, and are designed to enable a range of machining solutions to be tackled with ease.

400 Y (mm)

X (mm) 500 470 Z (mm)

Maximum number of tools 40

7 Up to axes

CU 2007

Up to 40,000 rpm

650 x 400 mm table

Flexibility and performance

400 Y (mm)

X (mm) 700 470 Z (mm)

Maximum number of tools 40

7 Up to axes

CU 3007

Up to 40,000 rpm

850 x 400 mm table

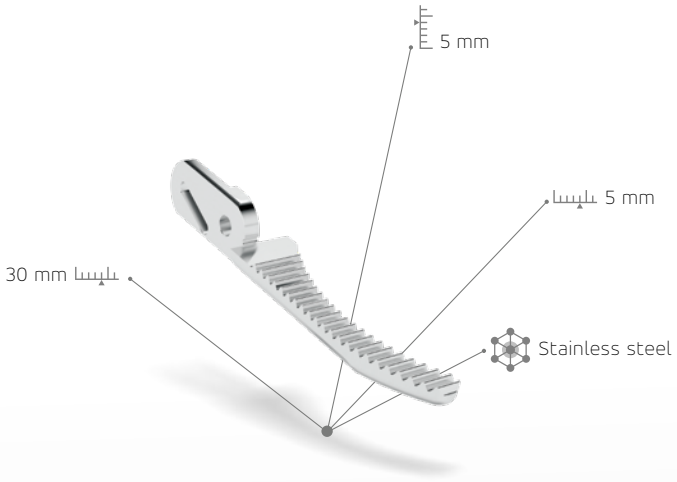
The gateway to 3 to 7-axis machining

Flexibility and precision

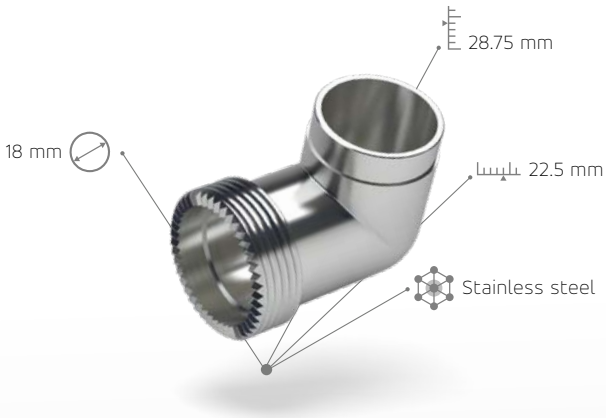
The CU 2007 and CU 3007 combine dynamic performance and outstanding reliability with Swiss expertise and precision, enabling Tornos to offer its customers a truly innovative solution. The comprehensive standard equipment, combined with the expertise of the company's engineers, create the optimal conditions for producing complex workpieces.

Rigidity

- *Cast iron structure providing high precision as well as excellent durability.*
- *The design of the machine means it can perform extremely demanding machining operations.*
- *The work table can support a heavy weight (250 kg).*



Medical & Dental



Electronics

Application

Easy to use

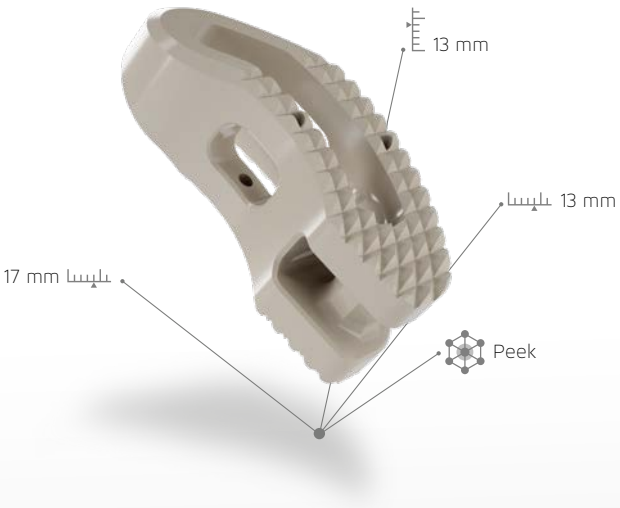
- *Ergonomic and easily accessible work zone.*
- *The walls are gently inclined to ensure optimum evacuation of chips directly towards the chip conveyor❁.*
- *A washing system manages the chips.*
- *Easy access to all units.*
- *Oil mist extraction systems.❁*
- *High-performance machining with up to 7❁ axes.*

Performance

- *Powerful high-performance milling spindle (12,000, 20,000 and 40,000 rpm).*
- *Spindle with thermal regulation.*
- *60 m/min rapid feed rate.*
- *Centralised cyclical lubrication system.❁*
- *Greater precision and perfect finishes guaranteed.*
- *Axial acceleration above 1 G.*

Flexibility

- *Functional design.*
- *3-axis table or rotary tables for 4❁, 5❁ or 7❁-axis machining.*
- *HSK-40 tool changer with 16, 24 or 40❁ positions.*



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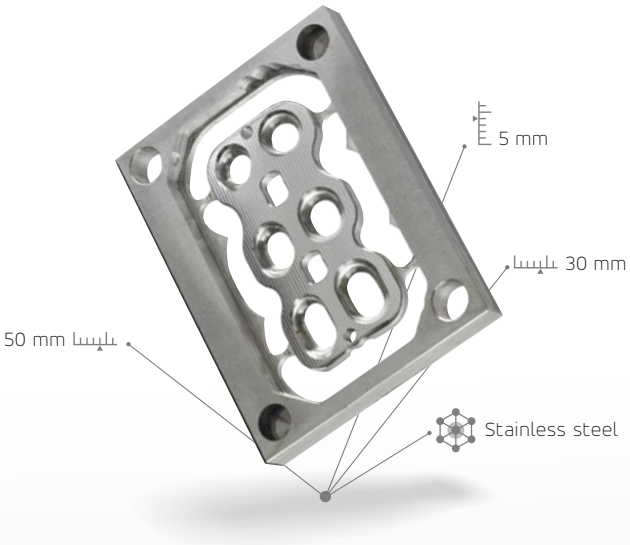


Medical & Dental

❁ Option

Spindle and tool changer

Capacity for 16, 24 or 40 tools

Tool magazine and tool changer system

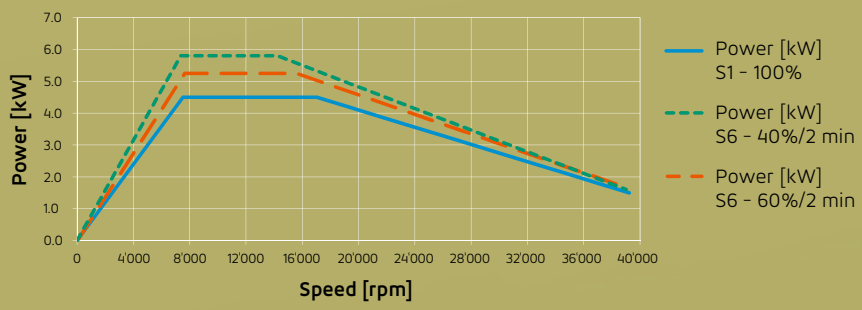
On the standard version, the CU 2007/3007 are equipped with a rapid and reliable tool changer system with a dual-position automated arm. 24 HSK-E40 tools can be loaded in the tool magazine, ensuring very low cycle times for optimal productivity.

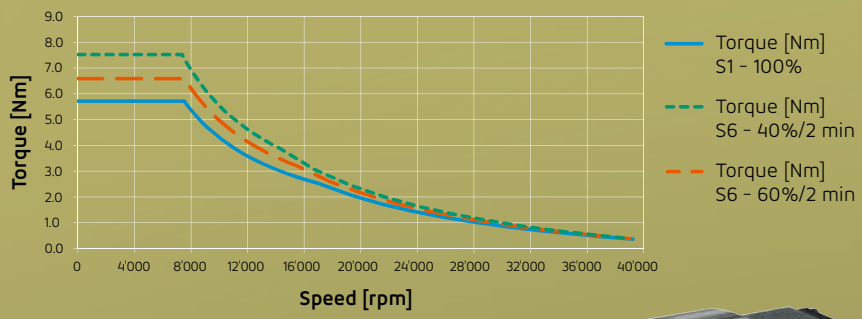
- *Capacity for 16, 24 or 40 tools (optional).*
- *Accurate and robust system.*
- *Tool changeover < 0.8 s.*
- *Chip-to-chip time < 3 s.*
- *HSK-E40 tool interface.*
- *Tool diameter up to 60 mm.*
- *Adjacent space of 110 mm.*
- *Tool length up to 200 mm.*

High-performance spindles

The CU 2007/3007 machines are equipped with ultra-precise machining spindles. The machine is fitted as standard with a 12,000 rpm mechanical spindle and can be equipped as an option with either a 20,000 rpm high-frequency spindle or a 40,000 rpm high-frequency spindle for the most delicate machining operations.

Power/torque curves for the 40,000 rpm high-frequency spindle

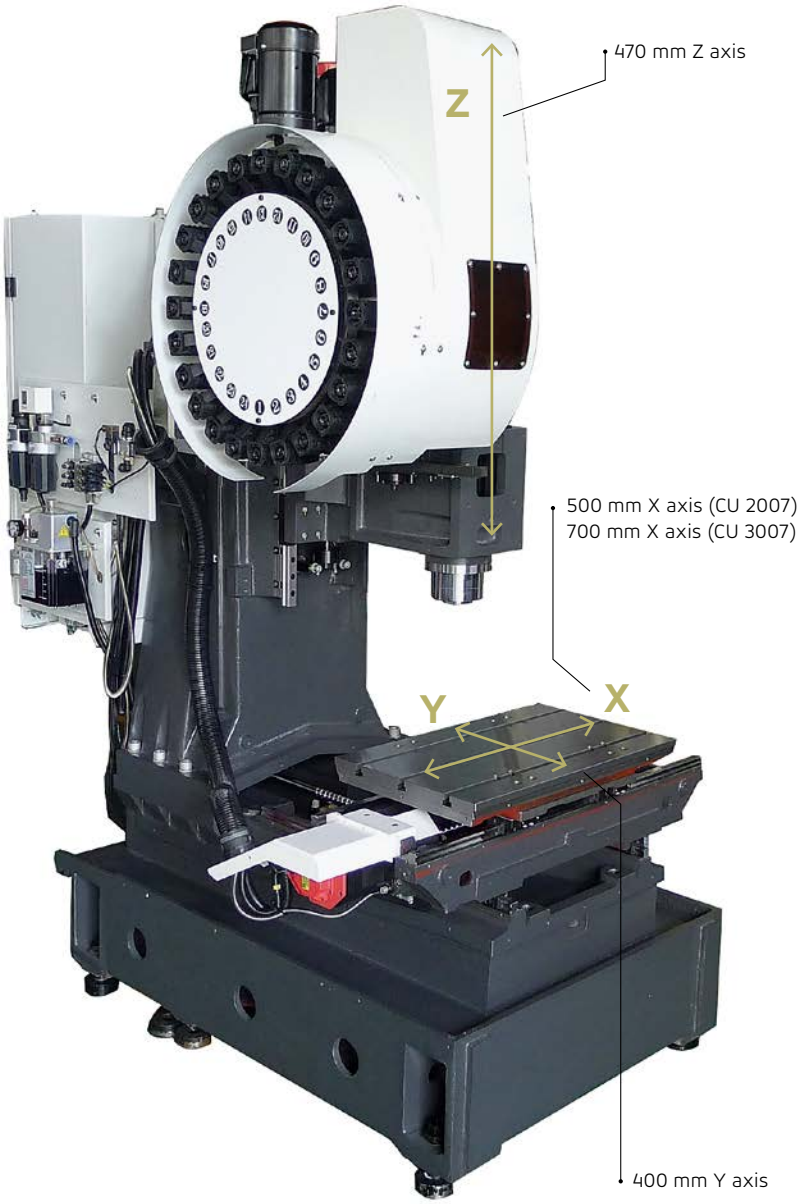




Speed (rpm)	12,000	20,000	40,000
Spindle type	Mechanical	Mechanical	High frequency
Power S1 (kW)	3.7	2.2	4.5
Power	5.5 (S3)	3.7 (S3)	5.8 (S6)
Max. torque (Nm)	35	12	7.5 (S6)
Feature	Increased torque	High torque High speed	Increased speed
Tool holder	HSK-E40	HSK-E40	HSK-E40
Lubrication	Lifetime lubricated	Lifetime lubricated	Air/oil

Clamping and mechanical design

Acceleration above 1 G



- *Simple and robust cast iron structure.*
- *Column with one vertical axis.*
- *Reduced maintenance and increased durability.*
- *Compact design.*
- *Increased rigidity and excellent thermal stability.*
- *Linear guides are used to ensure accurate positioning, quick movement and allow an increased machining load.*
- *The column structure and large bases have been designed for extremely demanding tasks.*
- *The distance between the spindle head and the column has been optimised to ensure the spindle is geometrically accurate.*

Drive systems

Mechanical drive systems provide a highly dynamic configuration with a feedrate of 60 m/min for increased acceleration at 1 G. Drive systems are lubricated via a central lubrication system.

Simple, efficient numerical control

The Fanuc OiMD numerical control system enables optimal simultaneous management of 3 to 4 axes.
Management of 5 simultaneous axes can be selected as an option for more complex machining operations (Fanuc 31iB5). The numerical control is placed on an adjustable ergonomic support which can be easily tilted by the operator.

Options:

- *Rigid tapping.*
- *All control contour mode II (200 blocks).*
- *Nano-smoothing.*
- *Sister tool management.*
- *Large diameter tool management.*

Tornos offers clamping solutions to suit your needs

The 5-axis CU 2007 and 3007 guarantee an excellent finish.
The thinnest structures can be produced quickly, to within tolerances of a few microns, using a highly stable process and at a competitive price.

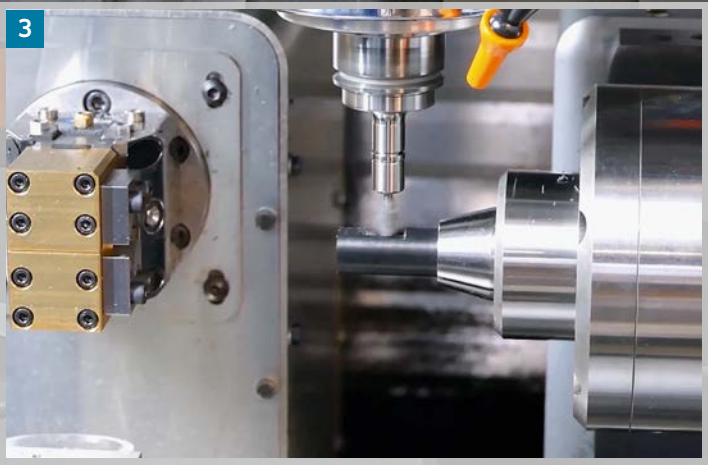
Increased process stability

7-axis CU 2007 / 3007 Machining from bar stock

In this special configuration, available as an option, the miller is fitted with a 5-axis divider. A second divider is installed on the machine, equipped with rotary axes and a linear axis that allow it to be converted into a bar feeding device as required. These two additional axes allow the machine to compete with more high-end turning/milling centres. In fact, the second divider enables the machine to not only feed the spindle with the correct bar length, but also to finish the part, specifically its sixth face. Once the front of the workpiece is positioned in the second divider, the cutting operation can start between the bar and the workpiece. Once clamped, the rear of the workpiece can be machined with the machine's spindle. The CU 2007 can produce highly complex parts.

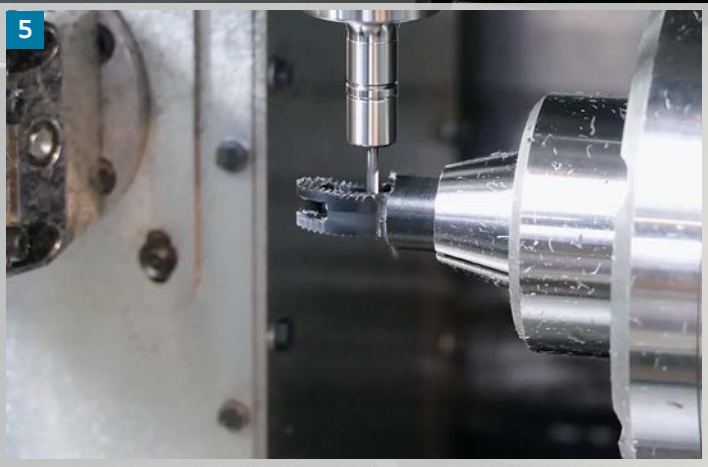
Pick-up of the slug

Loading of the slug



Machining of the front face

Machining with 5 axes (4 simultaneous axes)



Deburring of the part

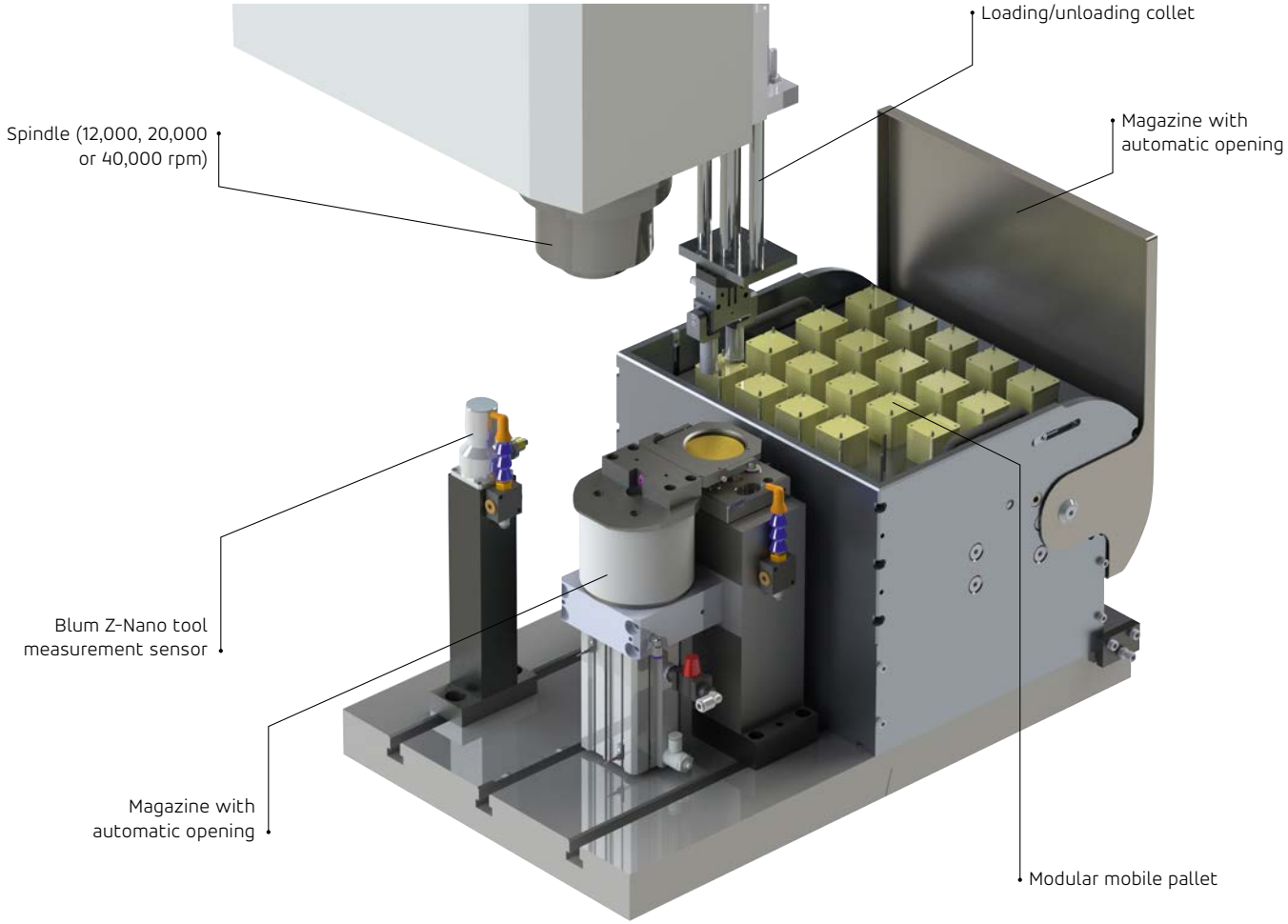
6th face machining with the pickup unit

Automation

Pick & Place system

To increase the productivity and autonomy of your production tool, Tornos offers an ultra-high-performance automatic Pick & Place system. The workpieces to be machined are automatically transported by the gripper arm from the magazine to the clamping system.

Once milling is complete, the workpieces are placed back on the mobile pallet. Loading is quick and the pallets can contain up to 200 workpieces depending on the size.



Pallets can hold 200 workpieces

Tornos CU 2007 robot for 24/7 machining

A unique solution that displays all the know-how of Tornos Milling with the integration of a robotised cell for greater productivity and greater machine autonomy. The 6-axis robot means workpieces can be loaded/unloaded and flipped. An additional gripping system is used to manage workpiece pallets.

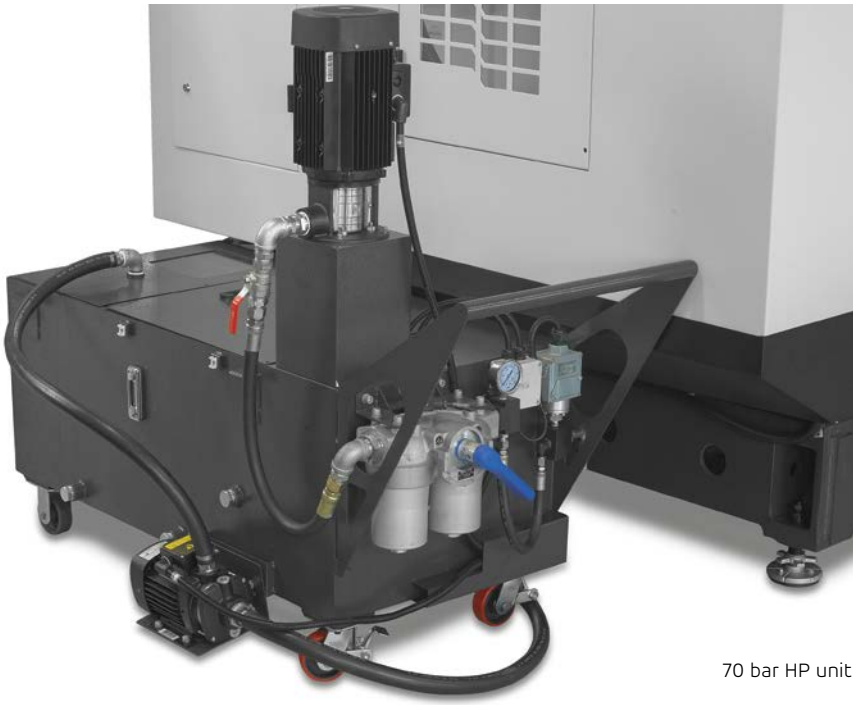
The integration of this robot offers the CU 2007 extreme autonomy of movement, notably: Loading, unloading, palletising, turning and reloading the machining unit with unparalleled precision. The device can even handle the intermediate storage and the repositioning of a part in its initial location. This automation saves precious time and increases the repeatability and precision of the workpieces produced by getting rid of manual operations which are always liable to introduce errors.

Peripherals and options

Chip tray and conveyor

Oil filtration and chip removal system

The CU 2007/3007 are equipped with a 200-litre tank which may be accompanied by a 580 mm or 1100 mm-high chip conveyor and a paper filter with automatic feed. These peripheral options offer optimal chip management



70 bar HP unit

High-pressure system for central cooling

For improved productivity and optimal machining quality, Tornos offers a high-pressure central cooling option.
Our 18, 42 and 70 bar high-pressure units offer a wide range to meet your needs.

Workpiece and tool measuring system

The workpiece and tool measuring systems perfectly integrated in Tornos machining centres ensure reliable production and exceptional workpiece quality.

Oil mist extractor

For customers without a central oil mist treatment unit, we offer compact purifiers to treat the vapour and smoke produced during the machining process using cutting oil.

Fire detection

To guarantee your safety, our machines are equipped with fire detection systems. These systems are automatic and reliable, ensuring early detection of fire, triggering the alarm and fully extinguishing fires. Using CO_2 extinguishers ensures the process is clean, enabling production to be restarted without delay

A global footprint

Rooted in Switzerland, Tornos' global footprint keeps us close to you. Economy, flexibility and efficiency are the most important premises of the Tornos Group's production and assembly network.

Lean assembly and careful use of resources are the guiding principles behind all Tornos production planning and an integral part of the entire production process.

The same consistent quality standards are enforced at all locations around the globe. Intelligent linking of knowledge between our plants, along the commitment and know-how of our employees—enable production to begin right on time.

Wherever you are in the world, we keep you turning.

Moutier

Our Moutier site—using the latest production technologies and equipment—produces the key components of our world-renowned machines and assembles our high-end automatic turning machines and other multispindle solutions. Key components stamped "made in Switzerland" are produced in Moutier for all of our production sites.

Xi'an

Our Xi'an, China site's special testing and development center allows it to fit out machines to customer specifications. In Xian, we produce standard products delivering great value for the money on a global scale.

La Chaux-de-Fonds

Tornos La Chaux-de-Fonds is renowned for its high-quality bespoke solutions in the field of micro milling. We create turnkey solutions to your technical specifications.
Each machining center has its own characteristics when it leaves the production plant.

Taichung

In Taichung, Taiwan—a city with a long machine toolmaking tradition and broad network of suppliers—Tornos produces mid-range machines. Our Taichung facility's services include customization, setup, designing models, and on-site testing of machines produced. Key components of our machines produced in Taichung are sourced from our Moutier production site.

Technical specifications

TECHNICAL SPECIFICATIONS		**CU 2007**	**CU 3007**
Axes and table			
Axes		3 to 5 simultaneous axes	3 to 5 simultaneous axes
Standard table (X/Y/Z)		3 linear axes	3 linear axes
Rotary table (X/Y/Z/A/B)		3 linear axes and 2 rotary axes	3 linear axes and 2 rotary axes
Dimension (X/Y)	mm	650/400	850/400
T slot	mm	3x14x125	3x14x125
Table/spindle distance	mm	150-620	150-620
X/Y/Z travel	mm	500/400/470	700/400/470
Rapid feed	m/min	60	60
Acceleration		> 1 G	> 1 G
Max. load	kg	250	250
Numerical control			
Control type		Fanuc OiMD	Fanuc OiMD
Max. number of axes		8	8
Simultaneous axes		4	4
Fanuc 31iB* control		Dual channel programming	Dual channel programming
Fanuc 31iB-5* control		5 simultaneous axes	5 simultaneous axes
Rigid tapping*			
Mechanical spindles			
Speed	rpm	12,000/20,000	12,000/20,000
Diameter	mm	80	80
Power S1	kW	3.7/2.2	3.7/2.2
Power S3	kW	5.5/3.7	5.5/3.7
Tool holder		HSK-E40	HSK-E40
High-frequency spindles			
Speed	rpm	40,000	40,000
Diameter	mm	100	100
Power S1	kW	4.5	4.5
Power S6	kW	5.8	5.8
Tool holder		HSK-E40	HSK-E40

* Option

TECHNICAL SPECIFICATIONS		**CU 2007**	**CU 3007**
Tool loader			
Type		Rotary/chain	Rotary/chain
Positions		24/40	24/40
Changeover time (tool to tool)	s	0.8	0.8
Chip-to-chip time	s	<3	<3
Max. tool length	mm	200/150	200/150
> max. tool	mm	60	60
Filtration unit			
Coolant		Oil/Emulsion	Oil/Emulsion
Cutting oil tray capacity	l	200	200
Max. flow rate	l/min	50	50
General specifications			
Length	mm	1580	2100
Width	mm	2450	2450
Height	mm	2410	2410
Weight	kg	2500	3000
Installed power	kVA	17 (depending on options)	17 (depending on options)
Voltage	V	3x400 (50 Hz)	3x400 (50 Hz)
Pneumatic pressure	bar	6	6
Options			
Tool measuring system		Blum Z-MT, Renishaw TS27-R	Blum Z-MT, Renishaw TS27-R
Workpiece measuring system		Blum TC-52	Blum TC-52
Chip conveyor (H)	mm	580 or 1100	580 or 1100
Chip tray with paper filter			
Oil mist extraction			
HP unit for central cooling	bar	18, 42 or 70	18, 42 or 70
Pick & Place automation system			
Fire detection system			

We keep you turning

tornos.com

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Tornos
throughout
the world

Complies with current European CE/EMC Safety Directives.

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