

# TORNOS



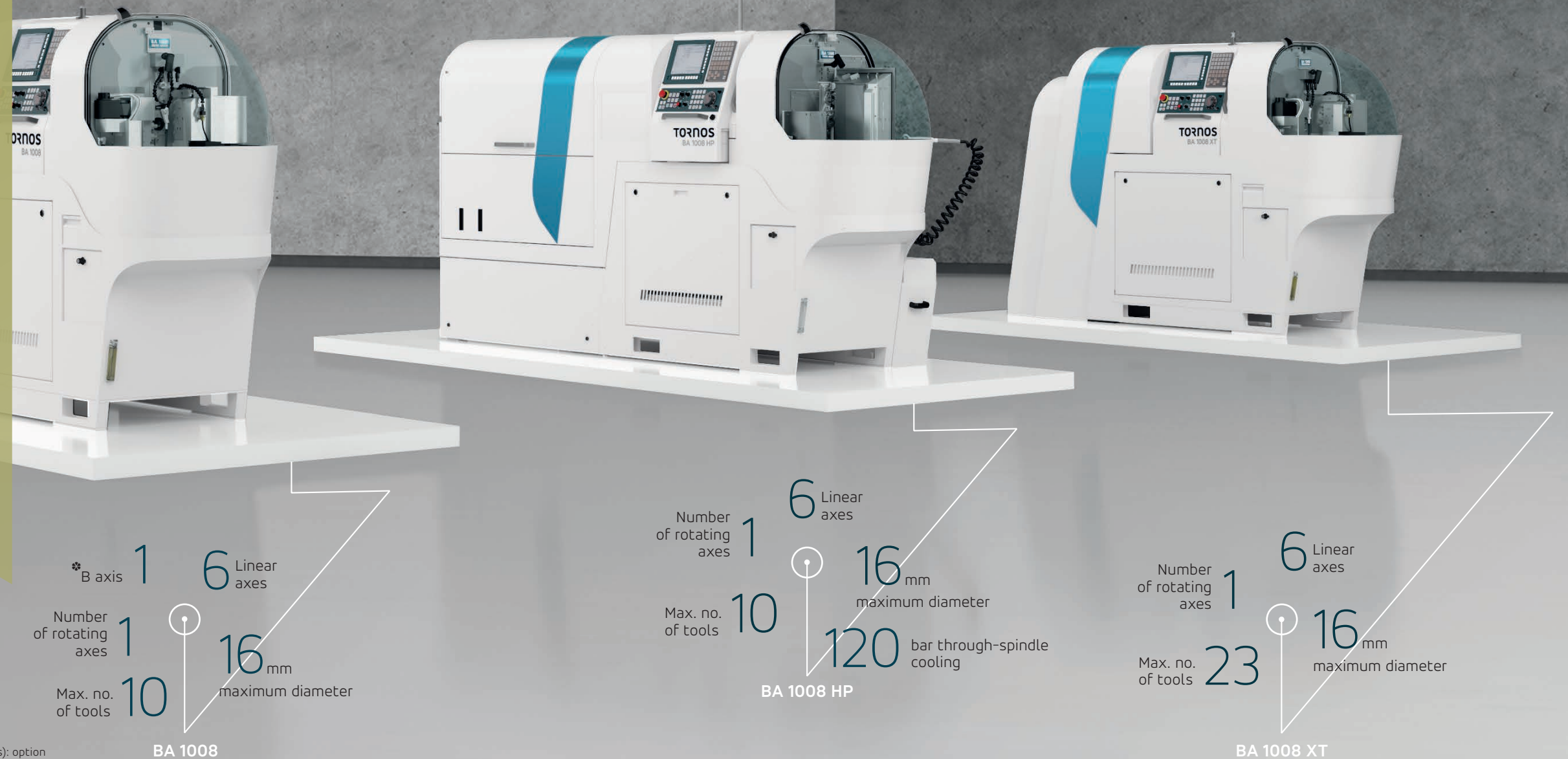
*High-precision  
bar miller*

BA 1008 range

# Productivity and precision

## BA 1008

The BA 1008 range comprises ultra-compact, high-precision bar millers. Thanks to their multi-spindle technology, these fast and powerful machining centres deliver impressive productivity.



\* Positioning B axis: option/Continuous B axis (5 simultaneous axes): option

# BA 1008: advantages

## BA 1008

Based on the SwissNano, the BA 1008 is an ultra-compact, high-precision bar miller. The BA 1008 is fed with bars via the machine, using a divider system which allows workpieces up to a diameter of 16 mm to be loaded. Positioned machining operations and interpolation between the tool systems and the workpiece are easily possible.

Machining area enclosed in a retractable bubble

Multi-spindle machining for maximum productivity

Different configurations possible depending on the workpiece requirements

Ultra-compact, footprint of just 1.6 m<sup>2</sup>

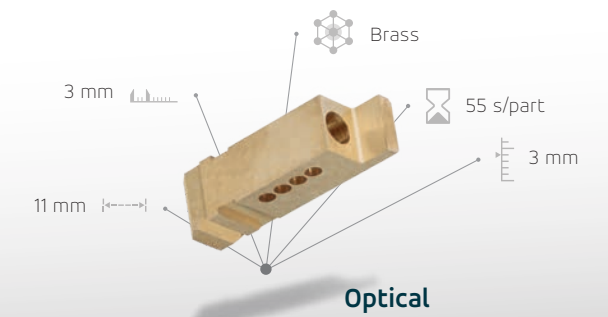
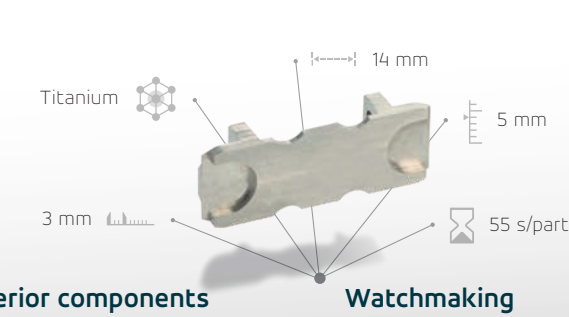
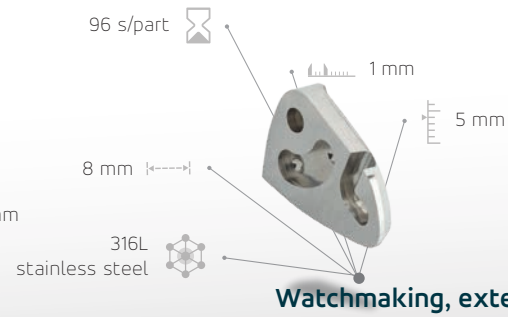
50-litre oil tray

CNC FANUC on swivel arm

Material fed from bar or coil from the machine

Retrieval of workpieces

Chip recovery



High precision

# BA 1008 HP: advantages

## BA 1008 HP

Based on the same design as the BA 1008, the BA 1008 HP is an ultra-compact bar miller equipped with multi-spindle technology and a high-pressure unit for through-spindle cooling. The BA 1008 HP is a flexible, compact, precise and efficient production tool.

Multi-spindle technology identical to the BA 1008 with through-spindle cooling (120 bar)

Machining area housing for optimal recovery of precious materials

Fine filtration and transfer tray, can be replaced during operation

Ultra-compact, only 2.4 m<sup>2</sup>

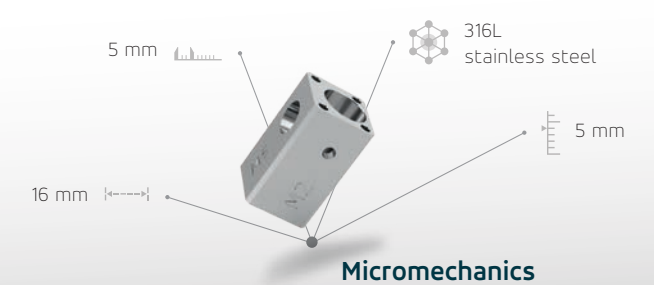
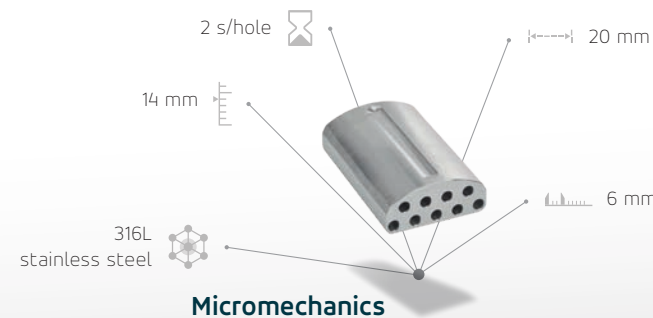
Container with high-pressure unit and optimal management of fluids and chips

300-litre oil tray

Access hatch for chip management



Exceptional machining performance



# BA 1008 XT: advantages

## BA 1008 XT

In the XT version, the BA 1008 has an integrated tool-change solution. This key asset enables increasingly complex parts to be produced in record time!

Up to 23 tools!

Multi-spindle machining for maximum productivity

CNC FANUC on swivel arm

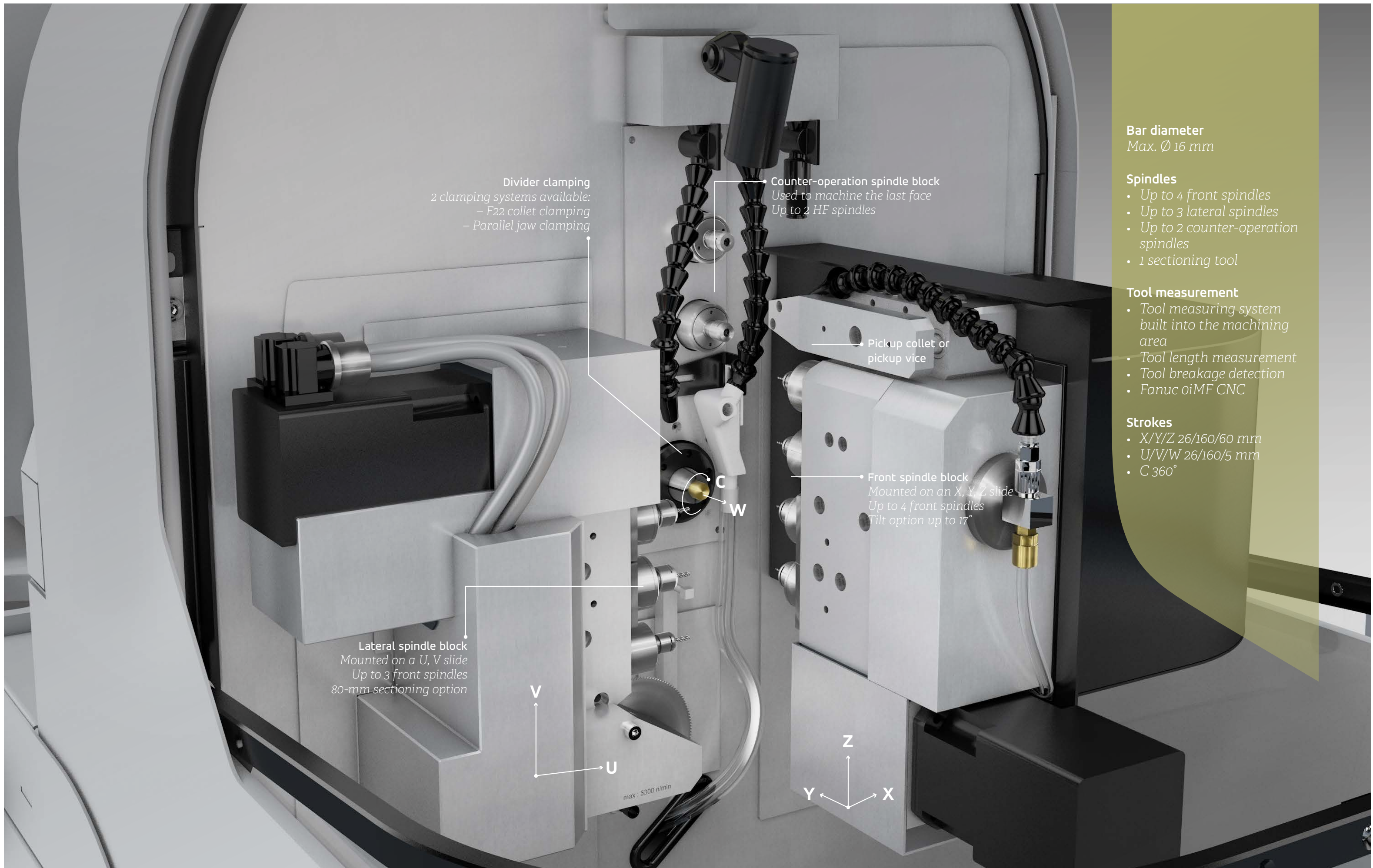
Material fed from bar or coil from the machine

Tool changer for 6-position lateral spindle

Tool changer for 10-position front spindle



High feasibility



**Divider clamping**  
 2 clamping systems available:  
 - F22 collet clamping  
 - Parallel jaw clamping

**Counter-operation spindle block**  
 Used to machine the last face  
 Up to 2 HF spindles

Pickup collet or  
 pickup vice

**Front spindle block**  
 Mounted on an X, Y, Z slide  
 Up to 4 front spindles  
 Tilt option up to 17°

**Lateral spindle block**  
 Mounted on a U, V slide  
 Up to 3 front spindles  
 80-mm sectioning option

V  
 U

Z  
 Y X

max: 5300 n/min

**Bar diameter**  
 Max. Ø 16 mm

**Spindles**

- Up to 4 front spindles
- Up to 3 lateral spindles
- Up to 2 counter-operation spindles
- 1 sectioning tool

**Tool measurement**

- Tool measuring system built into the machining area
- Tool length measurement
- Tool breakage detection
- Fanuc oiMF CNC

**Strokes**

- X/Y/Z 26/160/60 mm
- U/V/W 26/160/5 mm
- C 360°

# Spindle blocks



**Front spindle block**  
Mounted on an X, Y, Z slide  
Up to 4 front spindles  
Tilt option up to 17°

**Counter-operation spindle block**  
Used to machine the last face  
Up to 2 HF spindles

**10-position tool changer for front spindle (BA 1008 XT)**

**6-position tool changer for lateral spindle (BA 1008 XT)**

**Lateral spindle block**  
Mounted on a U, V slide  
Up to 3 front spindles  
80-mm sectioning option

**Inclined front spindle block**  
Adjustment angle from 0° to 17°  
Manual, pneumatic or NC motor control

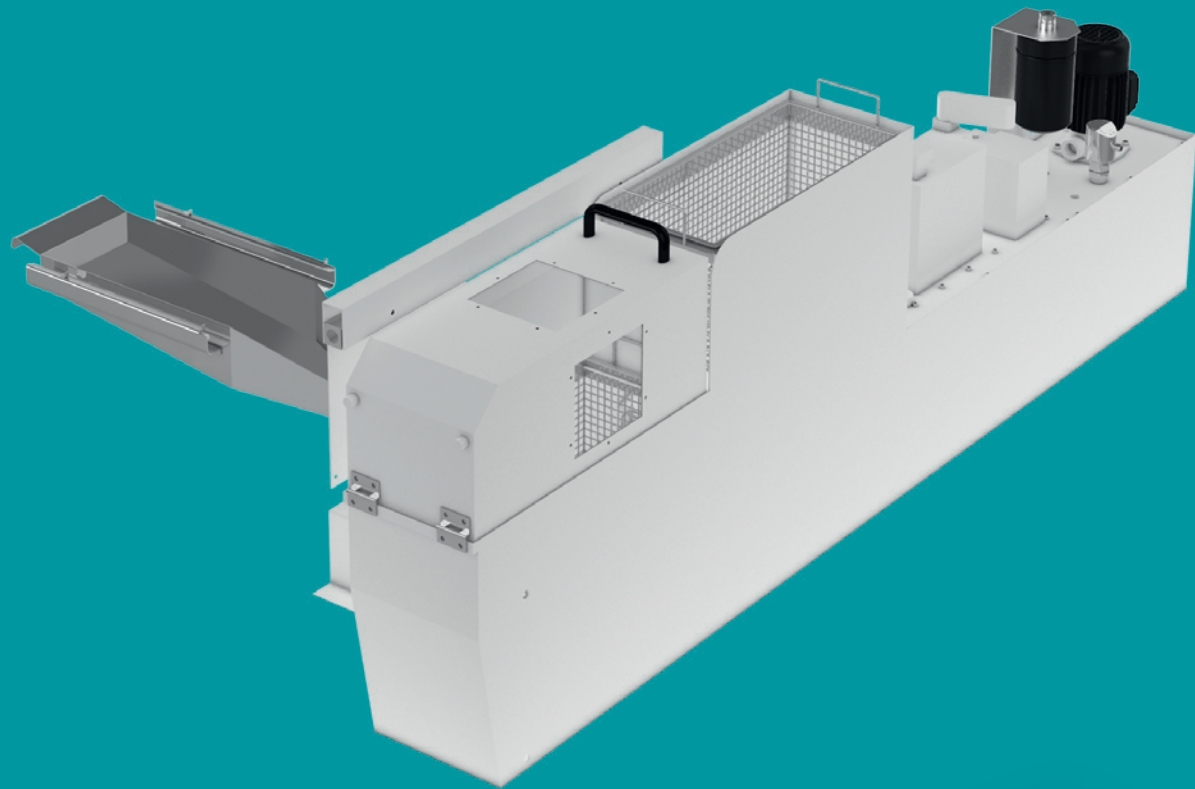
**3-axis tool measuring system**  
Tornos has developed a special assembly for compact integration in the BA 1008; the probe is mounted on a pneumatic table allowing the sensor to move into two positions: control position and machining position.

SPINDLE	MECHANICAL	HF 28	HF/HP 28	HF 28 Auto*	HF 80
Type	Mechanical	High frequency	High frequency	High frequency	High frequency
Speed (rpm)	12,000	28,000	28,000	28,000	80,000
Through-spindle cooling	No	No	Yes	No	No
Collet	ER 11	ER 11	ER 11	ER 11	ER 8

\* automatic

Rotation axis  
Divider with bar  
Front spindle  
Front spindle block

# Large tray with continuous thermostabilisation

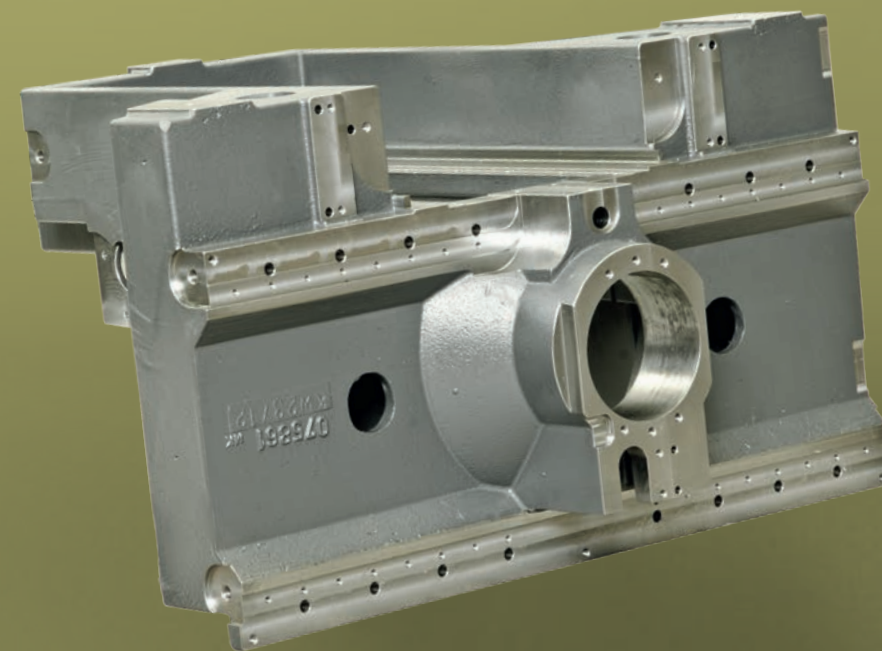
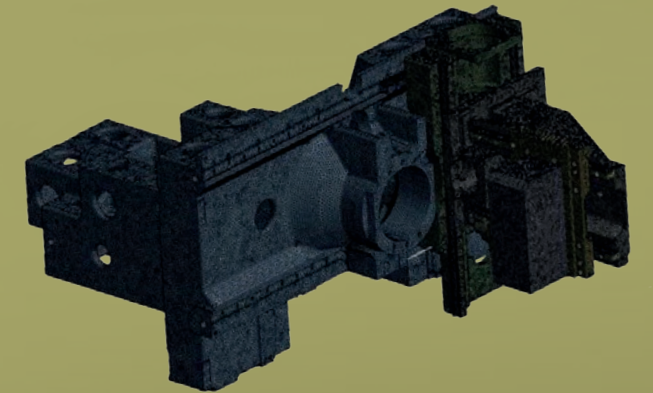


*The filter bags and their filtration fineness can be adjusted as required. An optional locking system is also available for secure machining of precious materials.*

# Mechanical design

## **The heart of each machine**

*The kinematic structure was designed for exemplary balance and thermal management. The axes and cast iron members are aligned symmetrically to the clamping spindle, and the thermal aspects are managed by 'mini-loops' that prevent heat propagation. The structure is anchored on three damped points. What about the results? Rigidity and vibration stability reach new peaks. Consequently, machining precision and quality are everything that they should be.*



# Symmetrical structure



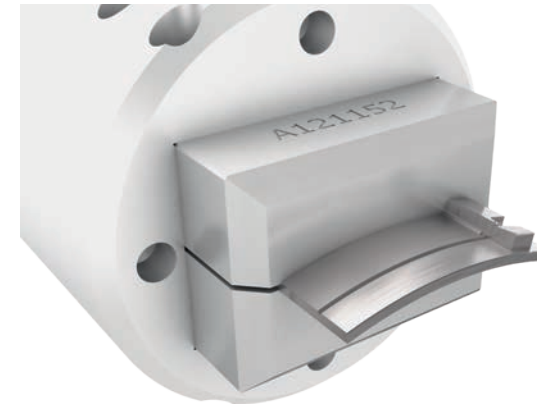
# Main and secondary operation clamping

**Collet clamping system**



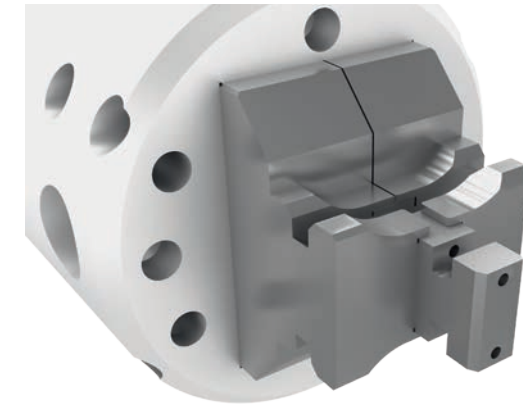
*The F22 divider collet clamps bars up to 16 mm in diameter. An F35 collet may be fitted optionally, after analysis of the clamping system.*

**Clamping system with parallel jaws**



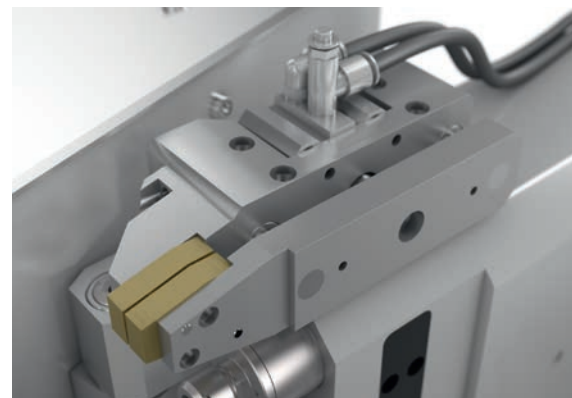
*Used to machine profiled bars (saves on material); Ideal for machining precious materials; Better bar positioning; Allows several bars to be machined simultaneously.*

**Clamping system with parallel jaws for long parts**



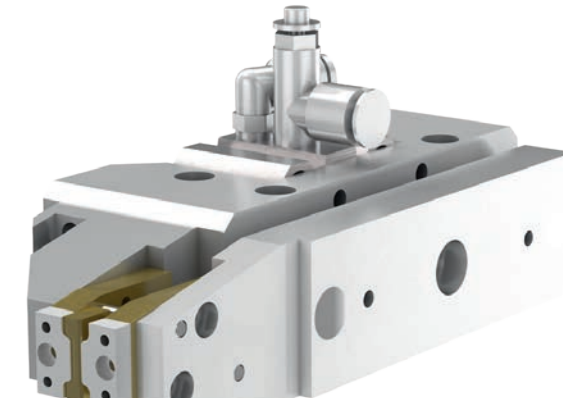
*Tornos draws on its expertise to develop customised solutions to suit your requirements for machining more complex parts.*

**Standard pickup collet**



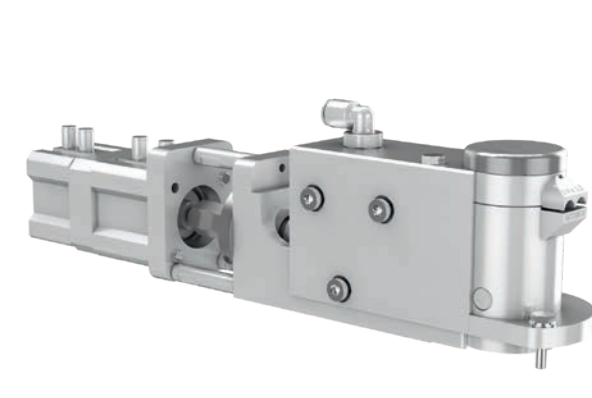
*The pickup collet clamps the workpiece for sectioning, and can be used to move the workpiece to the counter-operation spindles and eject it. It is possible to machine the shape of the collet using the pickup spindles.*

**Pickup collet for thin workpieces**



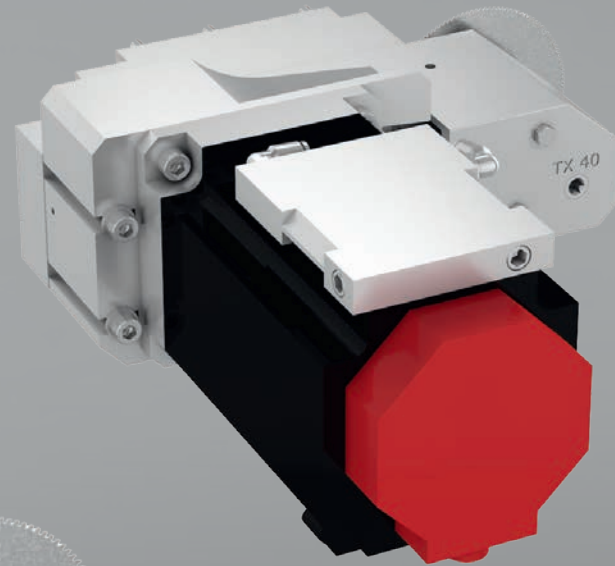
*Tornos has developed this special collet to efficiently clamp thin workpieces. A peg is used to position the workpiece during separation.*

**Reinforced pickup vice**

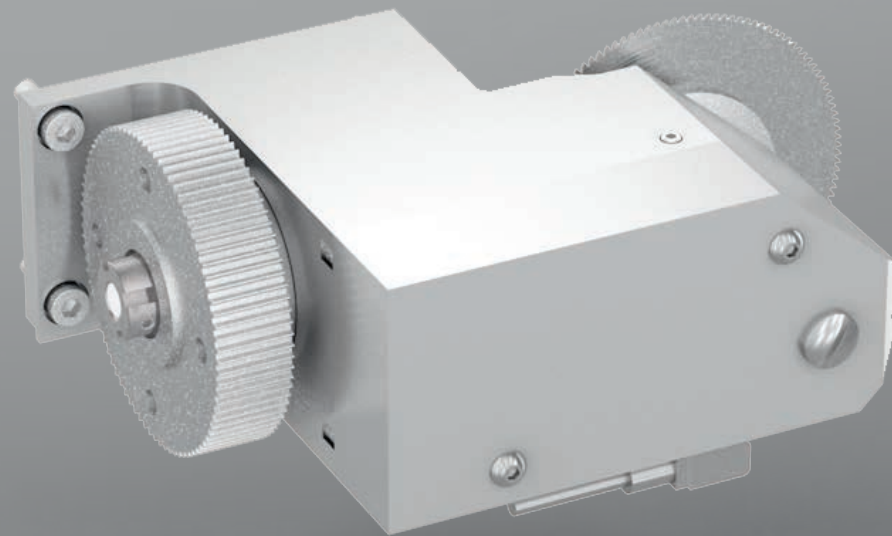


*For the most complex machining operations, the pickup vice with parallel jaws ensures optimal clamping. A spray system at the rear of the jaws prevents chips from entering. This clamping system is ideal for multi-bar machining.*

# Sectioning tools



Direct sectioning



Standard sectioning

	UNIT	STANDARD SECTIONING	DIRECT SECTIONING HIGH SPEED	HIGH TORQUE
Rotation speed	rpm	Up to 2500	Up to 8000	Up to 4000
Maximum torque	Nm	5	4,4	8,8
Maximum power	kW	0,9	2	2
Milling slot cutter Ø	mm	80	80 – 100 depending on the configuration	80 – 100 depending on the configuration
Bearing size	mm	2 x int Ø 10 mm	4 x int Ø 15 mm	4 x int Ø 15 mm
Drive		Angle drive	Direct	Direct

# Numerical control

The BA 1008 machining centre is equipped as standard with the Fanuc oiMD numerical control, renowned worldwide for its reliability, precision and ease of use.

- 10.4" colour LCD screen
- 512 kB memory (scalable up to 8 MB)
- Up to 4 simultaneous axes
- Data server
- Ethernet
- AI control contour mode (up to 200 blocks)
- Electronic handwheel
- Rigid tapping

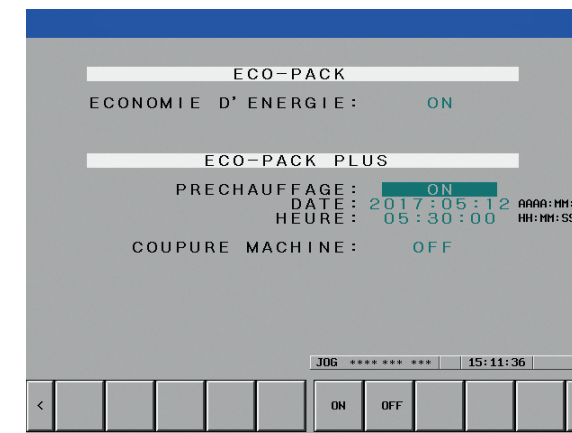
The BA 1008 machining centre can be optionally equipped with the Fanuc oiMF numerical control allowing dual-channel programming for improved productivity.

- 10.4" colour LCD screen
- 512 kB memory (scalable up to 8 MB)
- B axis
- Up to 4 simultaneous axes
- Data server
- Ethernet
- AI control contour mode (up to 200 blocks)
- Electronic handwheel
- Rigid tapping

## Compatible with the biggest names in CAM

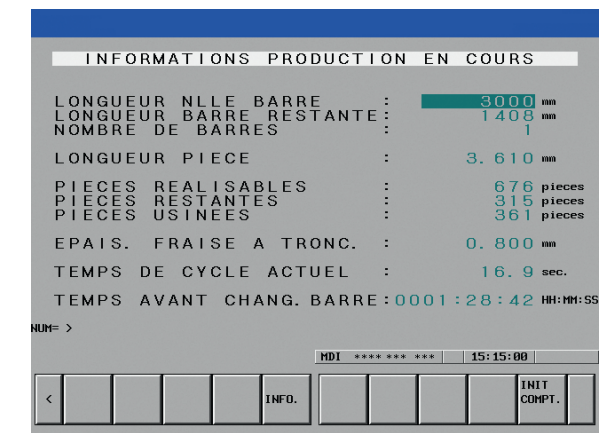
Tornos has established important partnerships with leading producers of CAM software. This enables you to exploit the full potential of your Tornos machines, whichever software you're using.

## ECO-PACK option



- Up to 75% lower consumption when the machine is not in production
- Easy-to-use CNC screen
- Fast payback

## ECO-PACK PLUS option



- Option to program machine preheating
- Option to program machine shutdown

## Tornos TISIS

The machines also benefit from the power of our TISIS software, which enables highly advanced monitoring of machines, easily and efficiently.

## Industry 4.0-ready

In addition to TISIS, thanks to the tool probe, Tornos offers the option to make automatic corrections, allowing closed-loop control.

# Part recovery devices

## Standard part recovery device

The counter-operation collet places the finished part in the part recovery device. It is then conveyed by gravity into a basket on the side of the machine that can be accessed when the machine is in production. This system is designed for workpieces measuring less than 4 mm.



## Vacuum part recovery device

With the Vacuum option, the parts are extracted via the Venturi effect and collected in a basket with an oil bath to avoid marking.



## Pneumatic part recovery device

This recovery system is mounted on a pneumatic cylinder. At the end of machining, the cylinder retracts and the workpiece falls into the part recovery device. It is then conveyed to a basket under the machining area. This system is designed for average size workpieces. 4 mm – 16 mm.



# Peripherals



Central suction

## Oil mist extractor



Suction on carriage



On-board suction

## BA 1008 material feeder

The bar feeder has a loading capacity of 650 mm, which allows the BA 1008 to automatically machine around fifty bars of 12 mm in diameter. It allows the production tool to run 24/7, with the least possible intervention from the operator. This option fully optimises the production costs of the BA 1008.



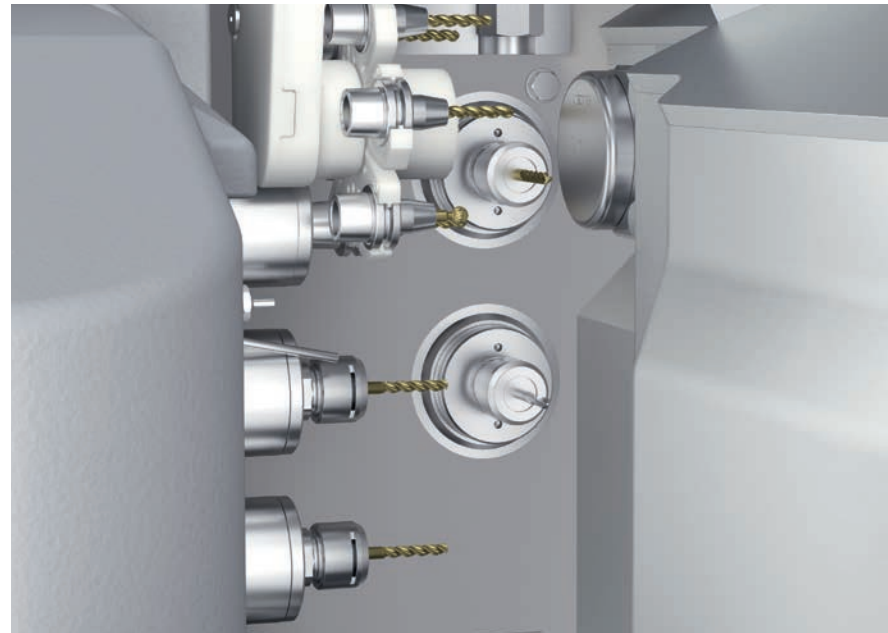
## Material coil feeder

The material is fed into the machine in coil form. A coil weighing between 30 and 80 kg is unwound by a dispenser on the side of the machine. The material is pulled through the machine by the wire feed system.



# Tool changers

The configuration of the BA 1008 XT significantly increases the machining options, enabling the manufacture of parts previously impossible to produce. It can house up to 8 spindles and two tool changers for a maximum capacity of 23 tools.



Tool changer for 6-position lateral spindle



Tool changer for 10-position front spindle

# Machining area



## Precious metals

**Precious metals machining area**  
Machining area housing for optimal chip drainage  
Chip collection up to 99.7% in 20 min.

# Tornos Service



Buying a Tornos machine is much more than a business transaction. It is your investment in the future. Tornos Service thrives worldwide by guaranteeing the superior production capabilities of products carrying the Tornos name.

Situated close to its customers, as demonstrated by the 14 Tornos Customers Centers strategically located across Europe, Asia, and the Americas, Tornos Service offers a comprehensive range of leading support services for Tornos machines, and encompasses the innovation, reliability and attention to detail expected of a premier Swiss brand. And it is all backed by a 100-year legacy of expertise and in-depth understanding of customers' processes, applications and challenges across a wide range of industrial segments, including automotive, medical, electronics and connectivity, and micromechanics.

### Start-up assistance

From the first feasibility tests prior to purchase, you are in good hands with Tornos Service. In our state-of-the-art Techno Centres, expert application engineers support you with tests to gauge the feasibility of machining processes and applications. With start-up assistance, you are secure in the knowledge that you will never be left alone to deal with a brand new machine.

### Expert training and coaching

Engineered for intuitive and easy use, Tornos machines offer a vast range of options and enable myriad processes. Expert training and coaching help your employees become specialists proficient in programming, handling and maintenance, adding more value to your processes, applications and products.

### Free Hotline support

Wherever you are in the world, highly qualified specialists who speak your language and understand your processes are just a phone call away to quickly support you with handling and programming solutions.

### On-site support

Fast, efficient on-site operations and preventive maintenance ensure the continuous high performance of your Tornos machines. Regular sche-

duled preventive maintenance can help you avoid 70% of machine breakdowns and keep you on the path to productivity.

### Certified original spare parts

Rapid, reliable, worldwide delivery of certified original spare parts is a speciality of Tornos Service. Regardless of the age of your Tornos machine, we stock the essential certified spare parts to keep the machine running at peak performance.

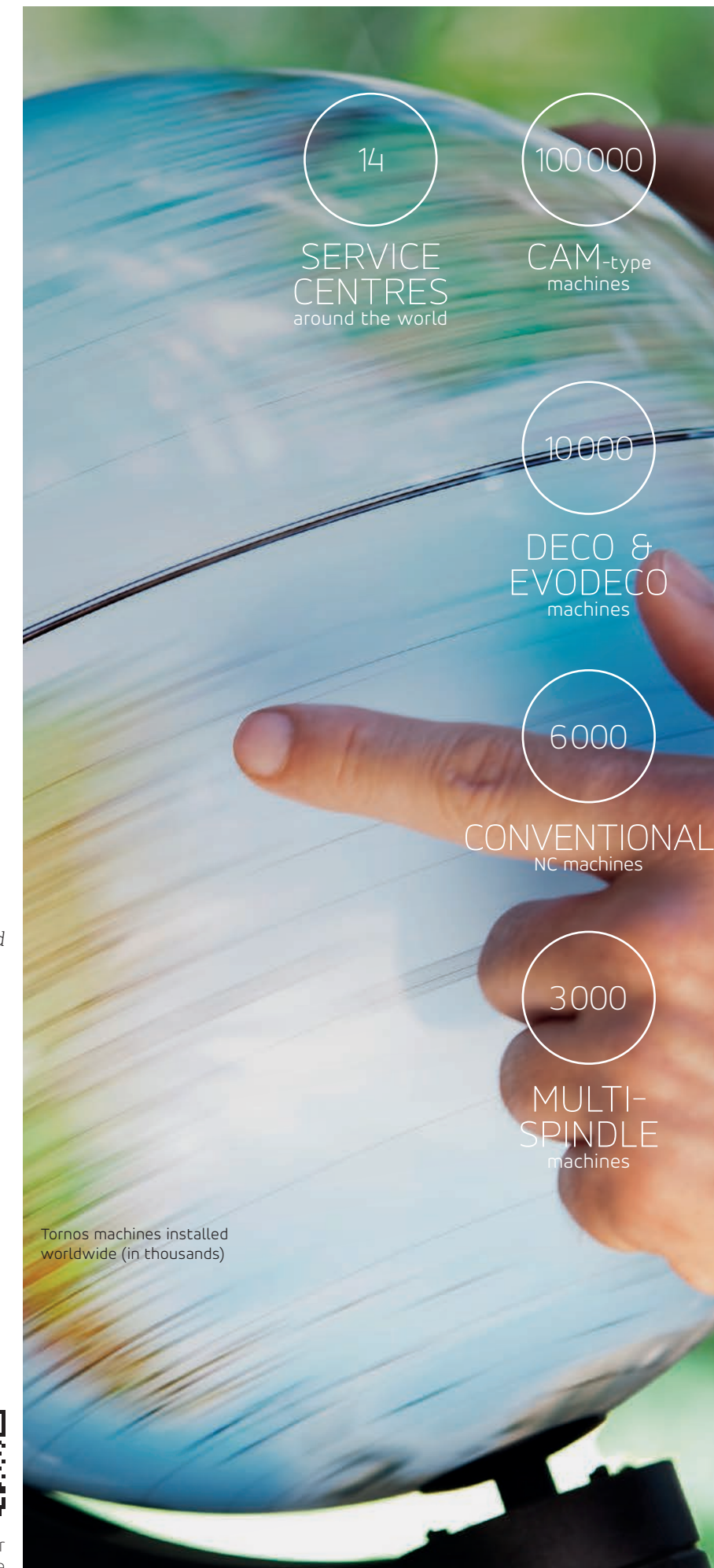
### Machine overhauls

Tornos machines inspire confidence. It's no surprise, therefore, that many customers turn to Tornos for a complete overhaul of their machines. The Tornos overhaul service returns the machines in good-as-new condition, significantly extending their service life.

### Options, upgrades and X-change modules

To help you achieve your manufacturing, productivity and quality objectives, our experts collaborate with you to manage complex machining processes, develop software features for machining complex shapes, design special equipment, and tailor peripherals to your needs. Tornos' X-change modules expand your application capabilities and profitability.

Backed by both geographical proximity to customers and an in-depth understanding of their processes, applications and market challenges, Tornos Service delivers an unparalleled continuum of support: start-up assistance, expert training and coaching, free hotline, on-site operations support and preventive maintenance, original spare parts seamlessly delivered worldwide, complete overhauls to extend the service life of Tornos machines, and a range of operations and X-change modules to expand customers' application capabilities and profitability.



Discover Tornos Service

# Technical specifications



TECHNICAL SPECIFICATIONS		BA 1008	BA 1008 HP	BA 1008 XT
		6 linear axes + 1 rotating axis	6 linear axes + 1 rotating axis	6 linear axes + 1 rotating axis
X/Y/Z travel	mm	26/160/60	26/160/60	26/160/60
U/V/W travel	mm	26/160/35	26/160/35	26/160/35
Rapid feed	m/min	16	16	16
Feed	mm/min	10 to 5000	10 to 5000	10 to 5000
<b>Numerical control</b>				
Control type		Fanuc Oi-MD/Oi-MF	Fanuc Oi-MD/Oi-MF	Fanuc Oi-MF
Max. number of axes		8/12	8/12	12
Simultaneous axes		4	4	4
Rigid tapping		From S0.6 to M5	From S0.6 to M5	From S0.6 to M5
Micro rigid tapping		From S0.3 to S0.6	From S0.3 to S0.6	From S0.3 to S0.6
<b>Divider</b>				
Max. bar capacity	mm	16	16	16 (F22)/28 (F35)*
Max. workpiece length	mm	28	28	28
Positioning offset	"	± 22	± 22	± 22
Repetition accuracy	"	± 7	± 7	± 7
<b>Front spindle block</b>				
Max. number of spindles		4	4	3
Tool changer for front spindle		-	-	10 tools
Spindle type		Mechanical or HF	Mechanical or HF/HP	Mechanical/HF/ HF-auto
Mechanical spindles rotational speed	rpm	12,000 (ER 11)	12,000 (ER 11)	12,000 (ER 11)
HF spindle rotation speed	rpm	28,000 (ER 11) or 80,000 (ER 8)	28,000 (ER 11) or 80,000 (ER 8)	28,000 (ER 11) or 80,000 (ER 8)
HF/HP spindle rotational speed	rpm	-	28,000 (ER 11)	-
Speed of rotation of automatic HF spindles	rpm	-	-	28,000 (ER 11)
* Optional				

TECHNICAL SPECIFICATIONS		BA 1008	BA 1008 HP	BA 1008 XT
<b>Lateral spindle block</b>				
Max. number of spindles		3	3	3
Tool changer for lateral spindle		-	-	6 tools
Spindle type		Mechanical or HF	Mechanical or HF	Automatic
Mechanical spindles rotational speed	rpm	12,000 (ER 11)	12,000 (ER 11)	12,000 (ER 11)
HF* spindles rotational speed	rpm	28,000 (ER 11) or 80,000 (ER 8)	28,000 (ER 11) or 80,000 (ER 8)	12,000 (ER 11)
Speed of rotation of automatic HF spindles	rpm	-	-	28,000 (ER 11)
Sectioning tool (Ø 80 mm)		1	1	1
<b>Counter-operation spindle block</b>				
Max. number of spindles		2	2	2
Spindle type		Mechanical or HF	Mechanical or HF/HP	HF/HF-auto
HF spindles rotational speed	rpm	28,000 (ER 11) or 80,000 (ER 8)	28,000 (ER 11) or 80,000 (ER 8)	28,000 (ER 11) or 80,000 (ER 8)
HF/HP spindle rotational speed	rpm	-	28,000 (ER 11)	28,000 (E 15-ER 11)
<b>Workpiece clamping</b>				
Main clamping			F22 collet/Parallel jaws	
Pickup clamping			Pickup collet/Pickup vice	
<b>Tool measuring system</b>				
Repeatability	µm	± 1	± 1	± 1
Total stroke	mm	5.5	5.5	5.5
Tool breakage detection system		Yes	Yes	Yes
<b>Filtration unit</b>				
Coolant		Oil	Oil	Oil
Cutting oil tray capacity	l	50	300	100
Part retrieval system		Yes	Yes	Yes
<b>General specifications</b>		<b>BA 1008</b>	<b>BA 1008 HP</b>	<b>BA 1008 XT</b>
Length	mm	2400	2700	2400
Width	mm	650	872	920
Height	mm	1600	1575	1600
Weight	kg	950	1200	950

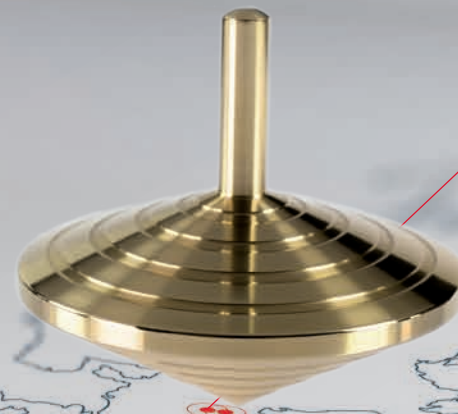
# A global footprint

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.



## 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 centre has its own characteristics when it leaves the production plant.



## 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.



## 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.



## Taichung

In Taichung, Taiwan—a city with a long machine tool-making 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 produces. Key components of our machines produced in Taichung are sourced from our Moutier production site.



We keep you turning



tornos.com

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Tornos  
worldwide



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