



# raptor

**Fuel your creativity  
in composites and  
aluminium machining**

**Engineered for reliability and stability,** Breton Raptor is designed to maintain precision over extended production runs. Its robust gantry structure minimizes vibrations during high-speed operations, ensuring consistent quality across all machining processes. For companies looking to enhance their manufacturing capabilities, Breton Raptor offers a proven solution that combines speed, precision, and versatility.

**breton**

## Precision and Performance for Advanced Machining

Breton Raptor is a multitasking 5-axis vertical high-speed machining center, specifically designed to meet the demands of industries requiring precision and efficiency in milling, trimming, edging and boring operations.

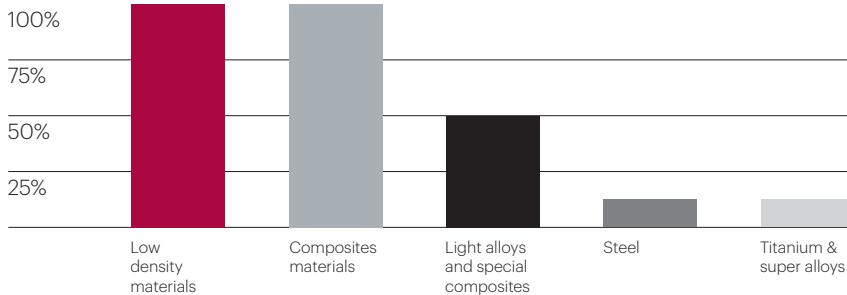
This machine is ideal for processing complex 3D shapes in materials such as lightweight alloys, advanced composites, and resins, making it a versatile solution for sectors like aerospace, automotive, and industrial manufacturing.

Raptor is equipped with an electromechanical spindle capable of delivering up to 40 kW of power, ensuring optimal performance even in the most demanding machining tasks. Its linear axes can reach speeds of up to 80 m/min, allowing for significant reductions in cycle times without compromising on accuracy.

The large working envelope, which can accommodate dimensions up to 8,000 x 4,000 mm with vertical clearance up to 2,000 mm, provides the flexibility to handle both small and large components with ease.

Whether for prototyping or full-scale production, this machining center ensures consistent results and optimizes operational efficiency.

### Performance



## EXCLUSIVE TECHNOLOGIES

The wide range of available structural combinations allows for a tailor-made configuration according to the required work volumes.

The carriage and the beam are equipped with high-efficiency low-friction driving technologies with that allow high-speed milling.

Breton Raptor thermosymmetric design allows structural deformations to be reduced and easily corrected through software.

Breton Raptor offers a high degree of configurability, making it a versatile solution tailored to meet the specific needs of each customer. Designed to adapt to a wide range of production requirements, it is available in multiple configurations, ensuring optimal performance across various machining applications.

Its flexibility makes it particularly well-suited for processing both composite materials and aluminum components. Whether for high-speed trimming, complex 3D milling, or large-scale industrial applications, Breton Raptor provides a customized approach to advanced manufacturing, ensuring seamless integration into diverse production environments.

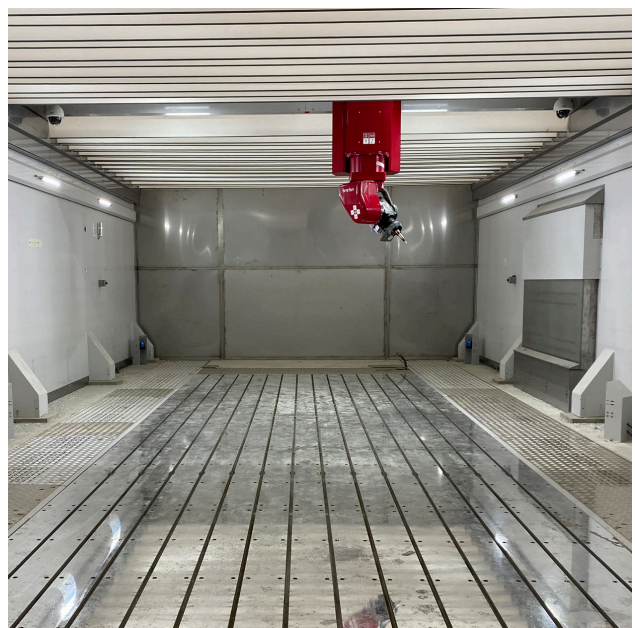
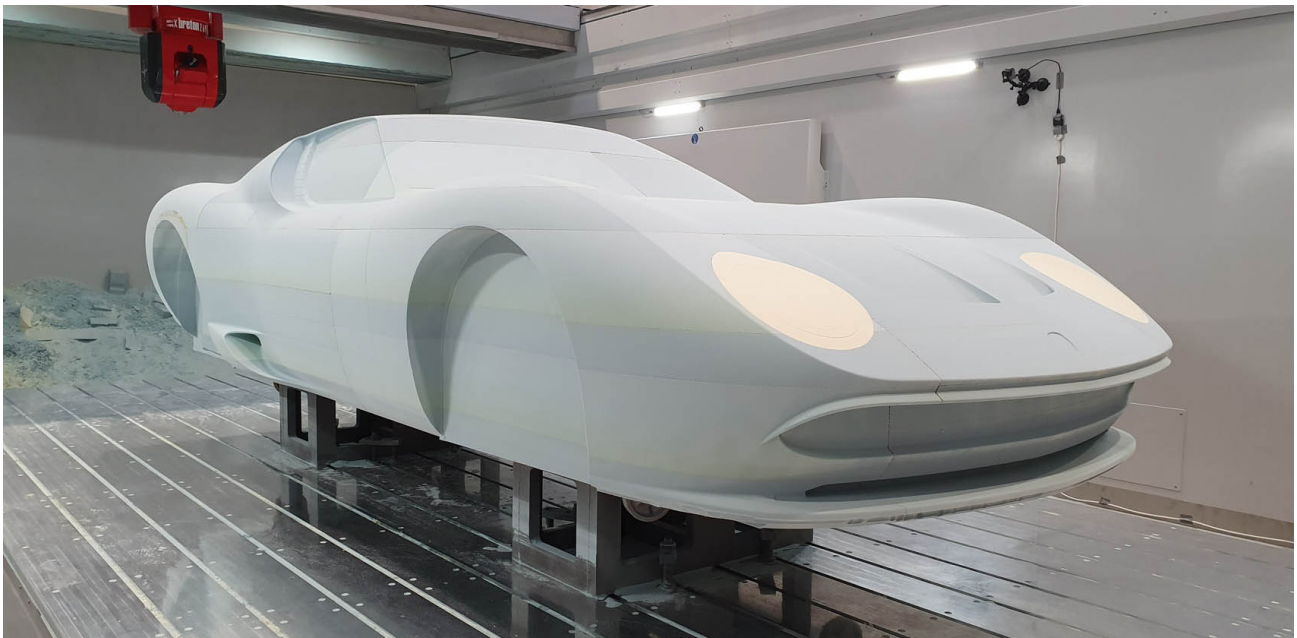
High Dynamics



Thermal Shield



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## **5 reasons to choose Breton Raptor**

### **1. Total application flexibility**

Breton Raptor is engineered to meet the dynamic demands of multiple sectors, delivering precision and unmatched adaptability.

Its modular design supports a wide range of Z-axis strokes (from 1,200 mm to 2,000 mm) and a variety of head and motor spindle combinations, ensuring it can handle even the most complex machining requirements.

With optional accessory packages, Raptor is fully equipped for specific processes such as ultrasonic cutting for composites, automatic thickness monitoring with Accuthick, and automated countersinking operations with Accusink.

### **2. Significant dimensional modularity**

Breton Raptor offers exceptional configurability, making it a truly tailored solution for customers' specific needs.

Its design supports vertical strokes ranging from 1,2 meters to 2 meters, cross strokes as wide as 4 meters, and longitudinal travel from 2.8 till 9 meters thanks to its innovative guide support system.

This modularity ensures optimal performance across all configurations, regardless of the application or material.

### **3. Perfect for both wet and dry machining operations**

Designed for versatility, Breton Raptor excels in both wet and dry machining operations.

Advanced protective systems safeguard sensitive components, including pressurised main drive train components and axis guides protected by bellows.

The head features a V-ring wiper seal for superior protection against aggressive and abrasive materials, while the tool store remains outside the work area, minimizing contamination risks and maximizing precision during tool changes.

### **4. Temperature variations are under control**

Breton Raptor's thermo-symmetrical design minimizes structural deformations caused by temperature variations, ensuring consistent performance even under demanding conditions.

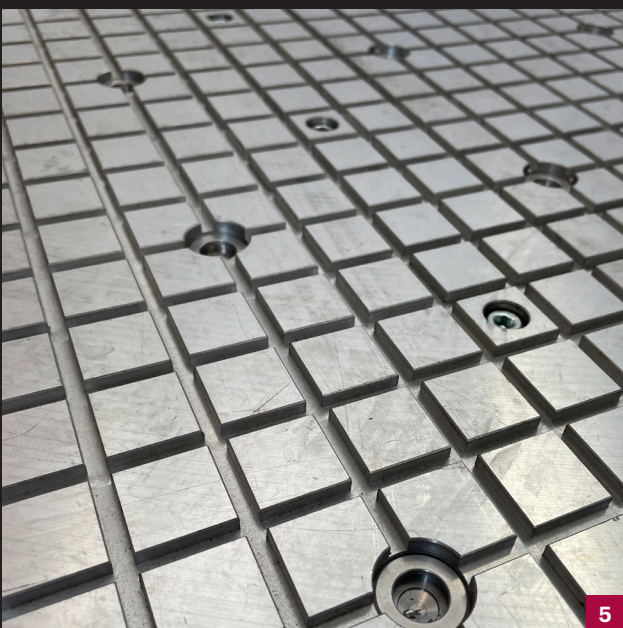
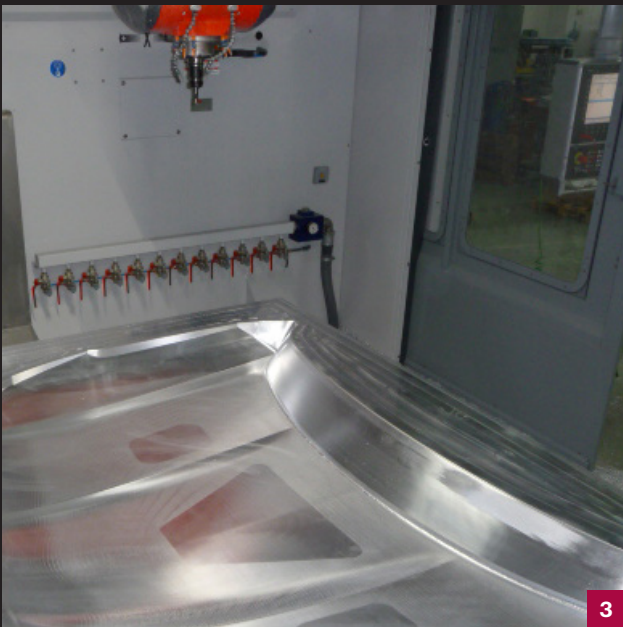
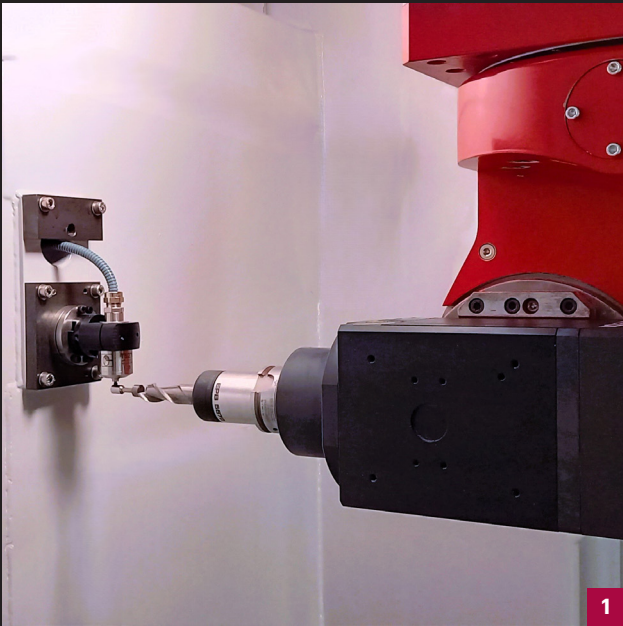
Critical components such as the head, A axis, and motor spindle can be actively cooled using a dedicated chiller, keeping heat transmission under control and ensuring reliable, high-precision machining throughout extended production cycles.

### **5. Two different heads to cover all requirements**

Breton Raptor offers two head configurations to cover a wide range of machining needs.

The compact and versatile Hornet orthogonal head, with a maximum speed of 24,000 rpm and 25 Kw of power, is ideal for machining resins and composites.

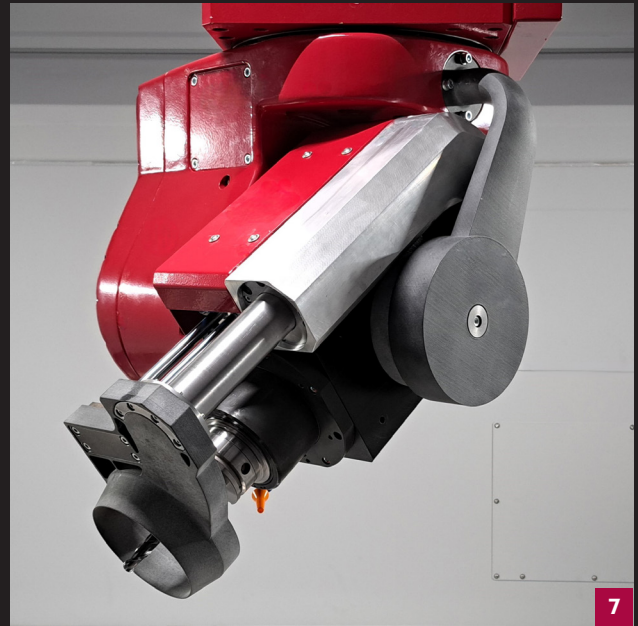
For applications requiring greater power, the Ghibli fork head delivers 62 Nm of torque and 40Kw of power with speed up to 28000rpm, providing exceptional material removal rates for resins, composites, and lightweight alloys such as aluminum.



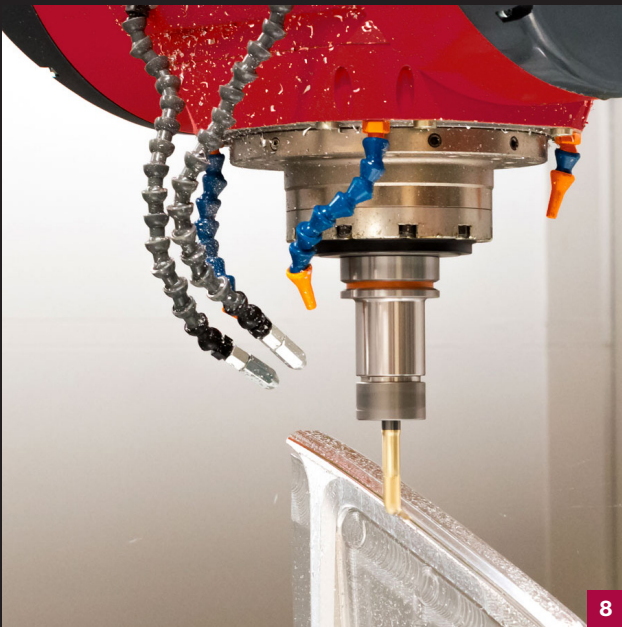
- 1.** Tool presetting is automatically performed with contact probes or laser gauging systems
- 2.** Siemens Sinumerik Control Panel – precision, efficiency, and advanced CNC capabilities in one intuitive interface
- 3.** High-precision milling of aluminum molds for racing applications
- 4.** Ultrasonic cutting on honeycomb panels
- 5.** Various table configurations available, from T-slot clamping to vacuum grids and continuous tops with modular suction cups



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**6.** Ceiling bellows provide optimal protection by containing dust and debris, ensuring the integrity of linear guides and critical component

**7.** Automatically-controlled dust extraction hood integrated in the spindle nose

**8.** Cooling with air around the spindle and through the tool can be also combine with integrated MQL systems

**9.** Orthogonal type Hornet Head

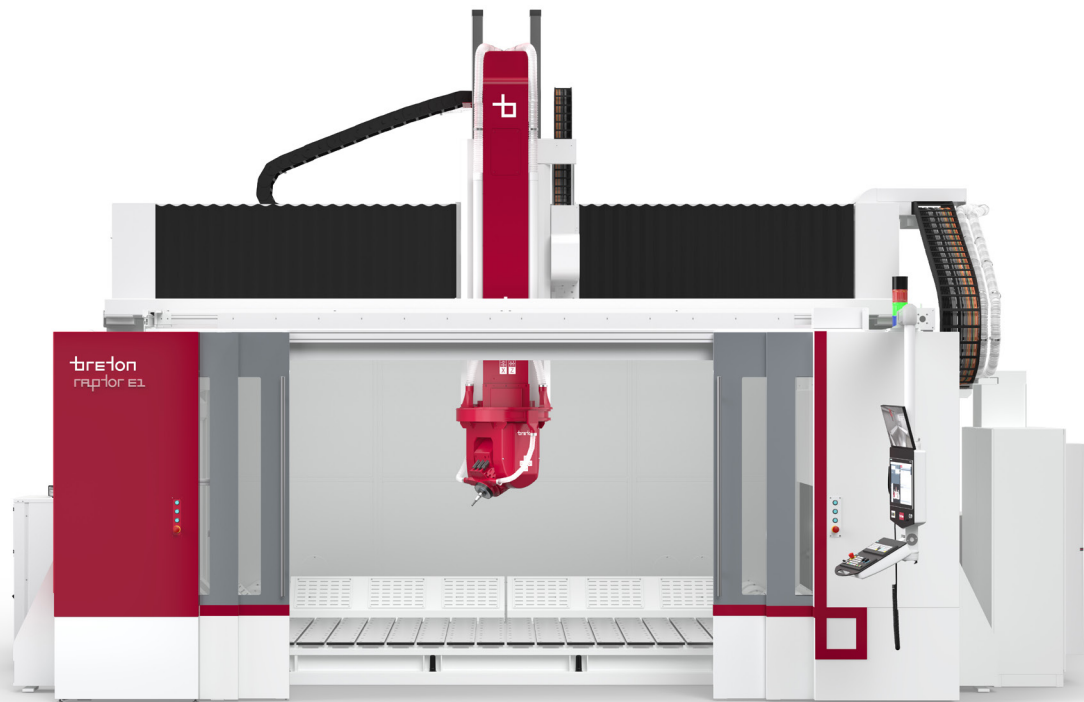
**10.** Fork type Ghibli head



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### RAPTOR E1

### RAPTOR E2

	RAPTOR E1	RAPTOR E2
<b>X axis travel</b>	2.800 - 30.000 mm	3.000 - 30.000 mm
<b>Y axis travel</b>	4.000 mm	4.000 mm
<b>Z axis travel</b>	1.200 mm	2.000 mm
<b>X/Y/Z axes rapid feedrate</b>	80 / 80 / 40 m/min	40 / 40 / 15 m/min
<b>A axis rotation</b>	±115° / +105° -135°	±115° / +105° -135°
<b>A axis rapid feedrate</b>	12 / 28 rpm	12 / 28 rpm
<b>C axis rotation</b>	±200° Ghibli Head - ±270° Hornet Head	±200° Ghibli Head - ±270° Hornet Head
<b>C axis rapid feedrate</b>	18 / 28 rpm	18 / 28 rpm
<b>Spindle power</b> S6   S1	31/25 - 41/37 - 25/21 - 18/15 kW	31/25 - 41/37 - 25/21 - 18/15 kW
<b>Spindle torque</b> S6   S1	65/52 - 89/62 - 20/18 - 14/12 Nm	65/52 - 89/62 - 20/18 - 14/12 Nm
<b>Spindle speed</b>	16.000-18.000-28.000-24.000 rpm	16.000-18.000-28.000-24.000 rpm
<b>Milling tool taper</b>	HSK-A63	HSK-A63

**Breton - a pioneer in the development of advanced technologies and materials - is an international group specialized in the design and production of state-of-the-art industrial machinery and plants.**

Founded in 1963, Breton has established itself on the global market thanks to its trustworthiness and its philosophy of innovation combined with reliability. Over its history, it has registered more than 1700 patents, devoting the equivalent of around 5% of its turnover to research and development each year.



The Breton Institute of Technology, expression of Breton's DNA and pioneering attitude, is the department where new technologies are explored and created. Several teams devoted to research design and develop new sustainable materials and technologies for different industrial sectors.