


matrix E1



A host of advantages
with a monobloc
machining centre

**High-dynamic and high-precision
5-axis gantry vertical machining
centre.**

Available in different configurations to best meet the needs of specific applications including moulds, aerostructures and composite machining. It is particularly suitable for hi-feed roughing, semi-finishing and finishing operations on medium size parts made of steel, light alloys and special composites.

breton

Breton Matrix E1

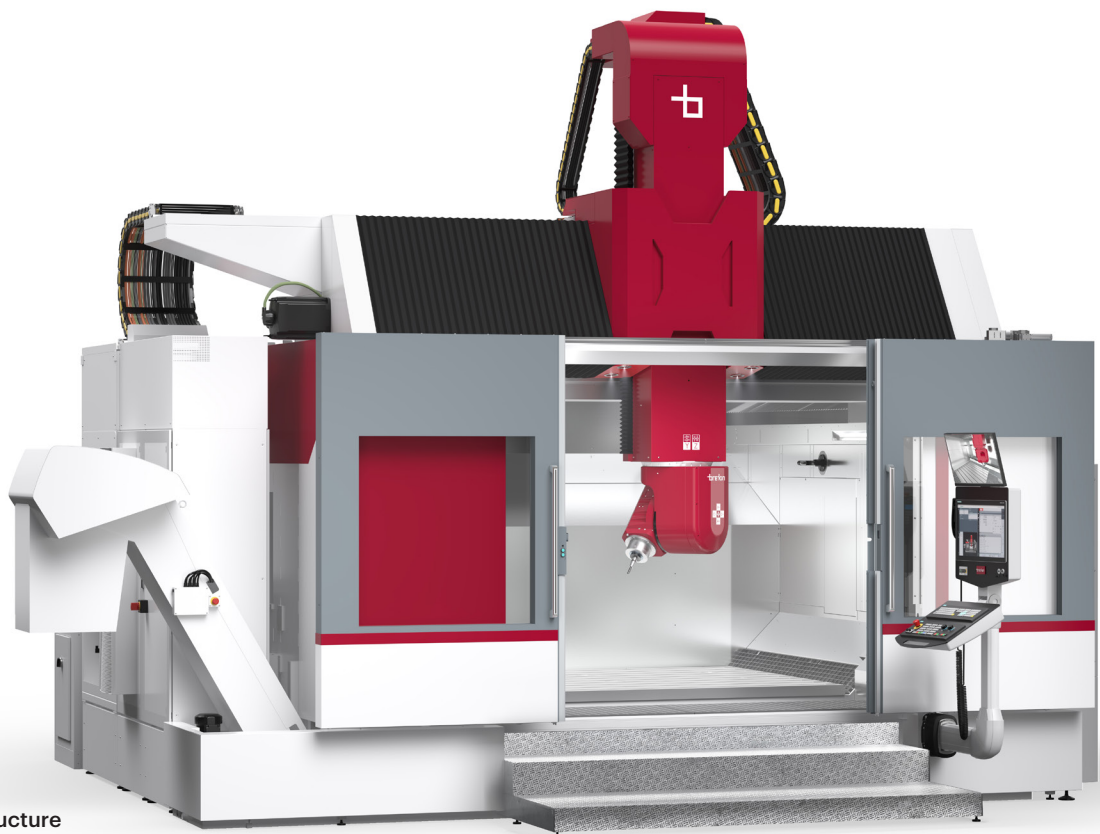
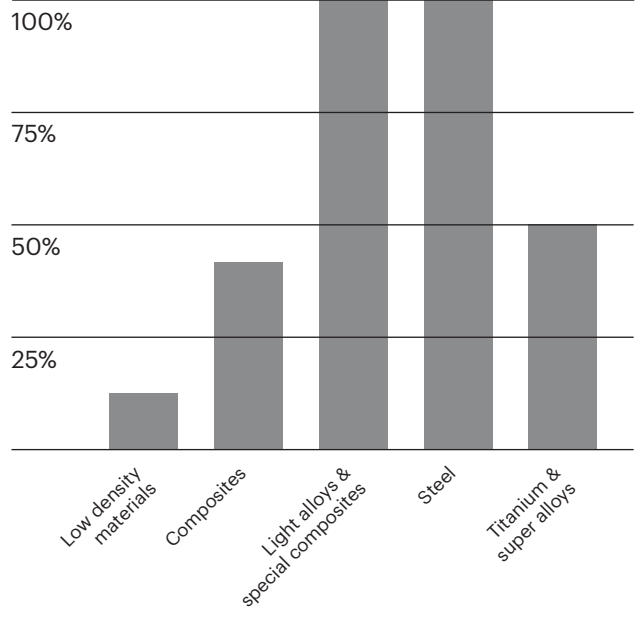
It is a project, developed and optimised through the most advanced Digital Twin simulation technologies; besides guaranteeing excellent working performance, it also allows this technology to be used to speed up all the simulation and machine configuration phases.

The high degree of robustness guaranteed by the one-piece structure is combined with technological solutions capable of maintaining the machine's high dynamics, such as High Dynamics technology, which reduces friction factors to achieve higher jerk, acceleration and speed.

The thermo-symmetric structure along with the Thermalshield technology ensure the total control of thermal expansions, the direct motors used for the axes movement remove the backlash and the vibrations and the A and C-axis are motorized by Direct Drive motors, all to provide first-class performances.

Various measures also help to halve installation costs and times and reduce Customer's operating costs.

Investment efficiency



The thermo-symmetrical structure and Thermal Shield technology ensure total control of thermal expansion.

EXCLUSIVE TECHNOLOGIES

Breton Matrix E1 is equipped with the most advanced technologies to guarantee excellent machining performance.

High Dynamics



Direct Drive Head



Monoblock



Thermostable



Thermal Shield



Direct Motors
(on X, Y and Z axes)



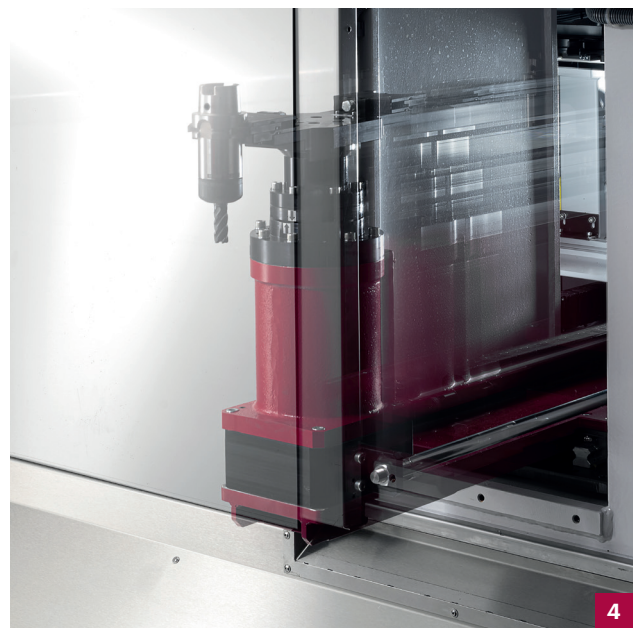
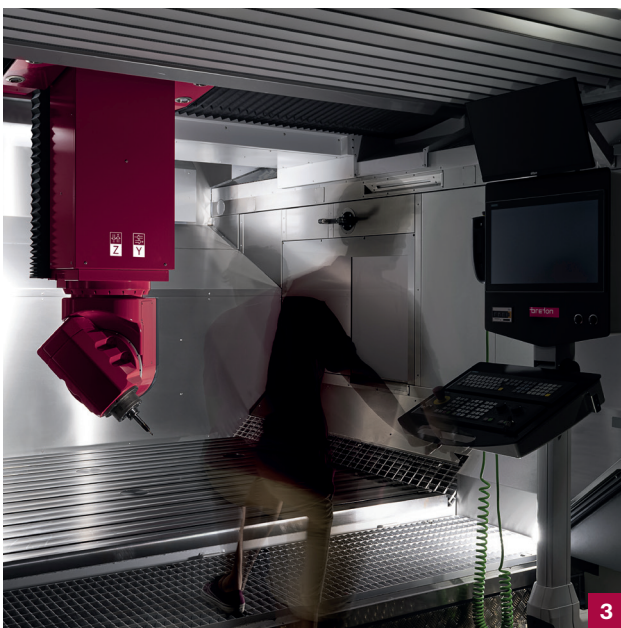
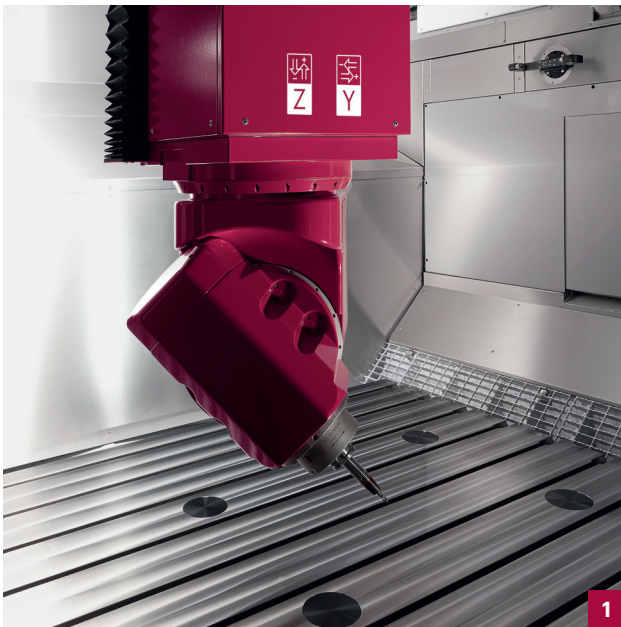
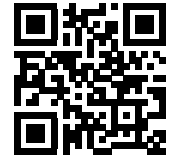
1. RAM among the sturdiest in the category

2. High operating comfort and versatility of use with customised accessories

3. Easy accessibility and reduced operating costs

4. Compact and fast exchanging arm compatible with various tool store

Scan the QR code to discover more



5 reasons to choose Matrix E1

1 / Compactness

Best **optimization of the ratio between machine size and axis strokes**, i.e. the footprint efficiency ratio. The transversal arrangement of the layout (transversal stroke 2500 mm and longitudinal stroke 2000 mm) allows to push the machine rear side against the wall, **improve the internal machine visibility** to the operator and deliver the machine to the customer already assembled.

2 / High precision

The thermo-symmetric structure along with the Thermal Shield technology considerably improves the **control of the thermal expansion** and allow reducing structural deformations without using expensive cooling systems. The direct motors for the axes movement **remove the backlash and the vibrations** caused by the belts; the **Direct Drive motors for A and C-axis** guarantee the necessary power when required.

The head is equipped with large bearings to provide the **rigidity required for the heaviest operations** but also to use **high-resolution integrated encoders**. Moreover, both axes and electrospindle are **coolant-refrigerated**.

3 / Reduced installation time & cost

Installation times and costs have been halved. The **monoblock structure allows delivering the machine already assembled** to the customer, considerably simplifying installation time on site.

The structural rigidity just requires **simple flat foundations**, thus minimizing the use of anti-shrinkage cement and chemicals for ground anchoring.

4 / Versatility

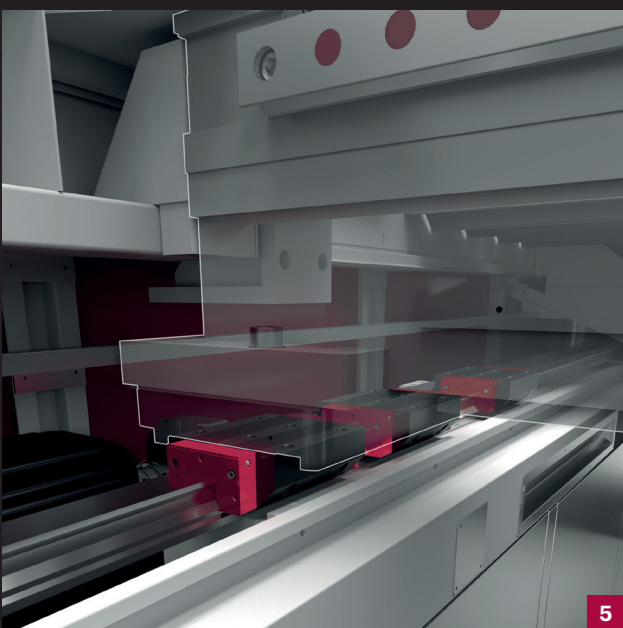
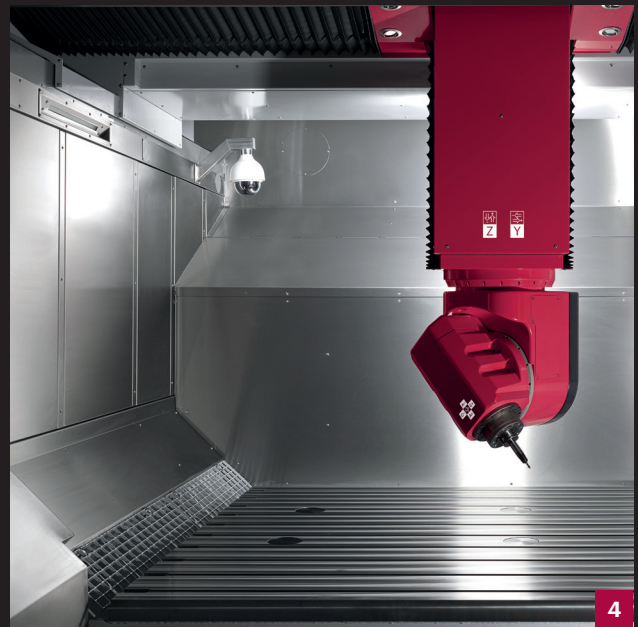
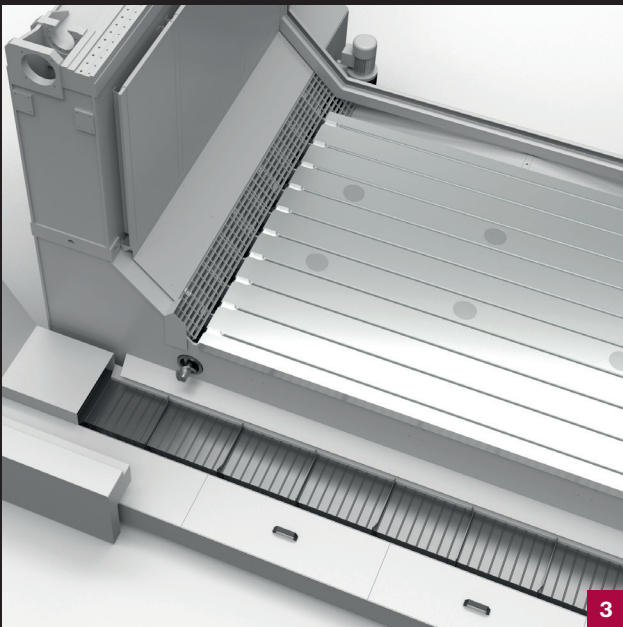
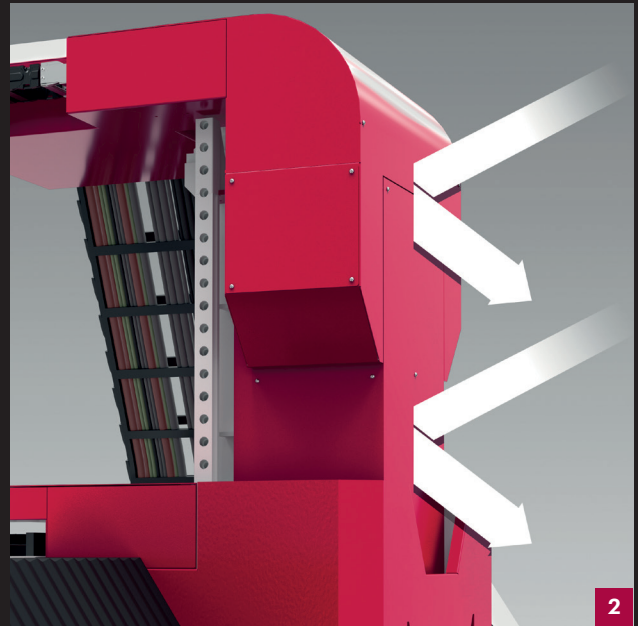
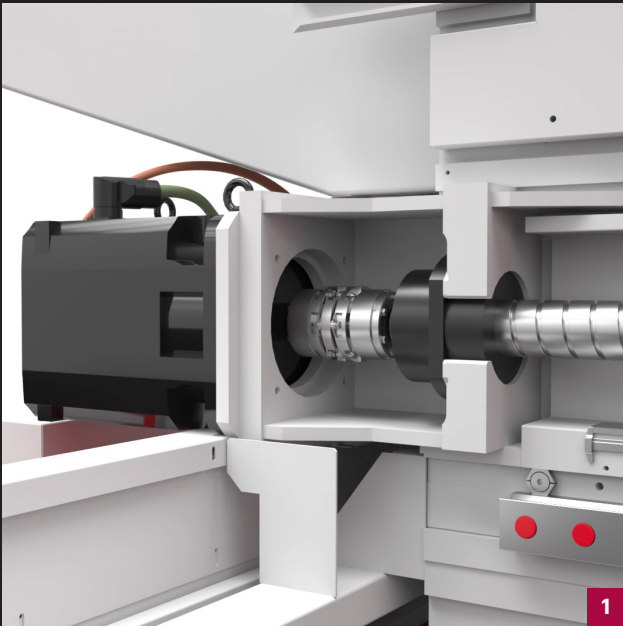
This machining centre guarantees enough **thrusts and rigidity** to perform high-feed roughing and top-of-the-range semi-finishing and finishing operations. At the same time, it offers the **ideal dynamics, speed, and accelerations** for those who are looking for the **highest production performances** even on the most demanding parts made of aluminium or composite.

Matrix E1 can fully meet the needs of **three sectors**: aerospace, moulds and composites. According to the application, a customised set of accessories allows the machine to be configured to guarantee **the highest level of performance and services** based on the parts and materials to be machined.

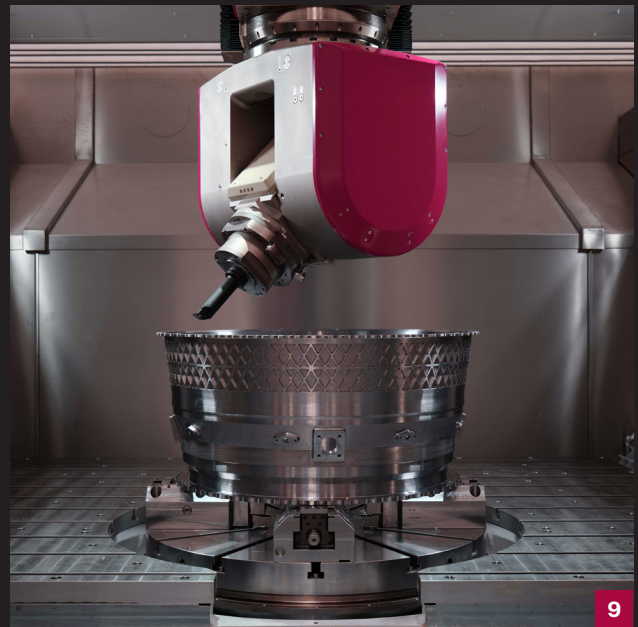
5/ Minimized operating costs

The reduction of operating costs represents, of course, an added value. The kinematics and mechanisms lubrication has been completely reconceived, replacing the traditional systems with an **advanced plant for lubricant control and distribution** which prevent any leakage toward your parts. In this way, the most common problems such as part contaminations, dirt, dangerous vapors, and relevant maintenance costs are solved.

Any variations in temperature are stabilized thanks to thermo-symmetrical structures and the patented Thermal Shield. The working area is covered with **modular stainless steel panels** which, combined with the **most efficient dust extraction systems**, allow keeping it clear and safe for the operators and also to **extend the machine life**.



- 1.** Direct motors for superior dynamic response
- 2.** Patented thermal shield for a better control of thermal expansion
- 3.** Chip discharging system on the table sides with screw and belt conveyor
- 4.** Working area covered with modular stainless steel panels
- 5.** Three roller pads on each shoulder guideway



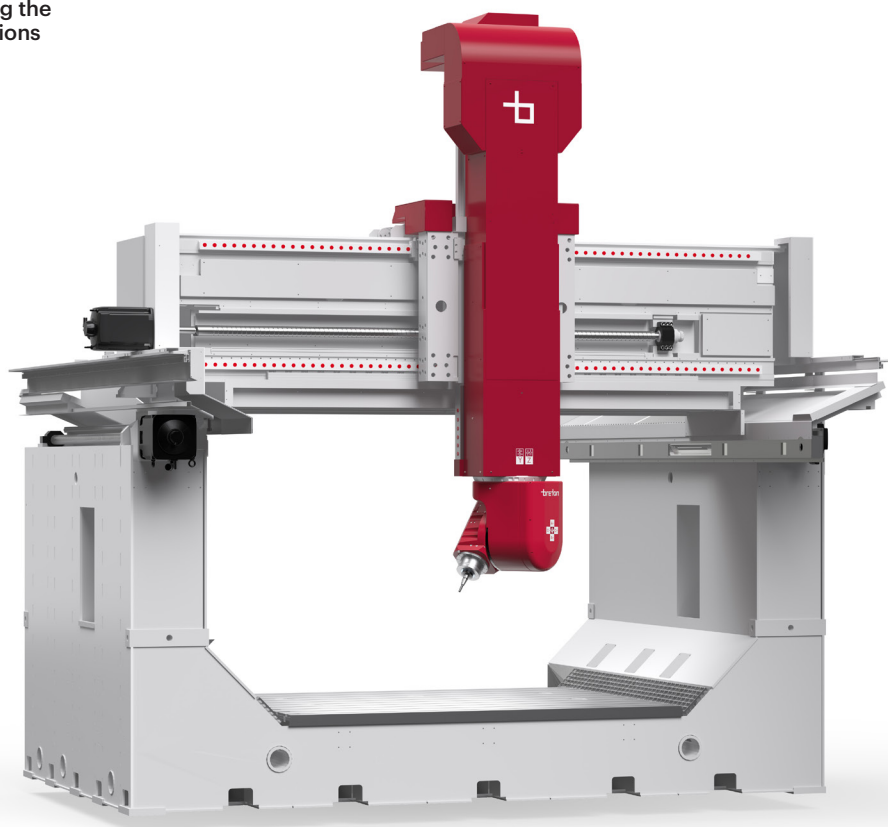
6.
Various types of tool store
compatible with the new
exchanging arm

7.
Designed and tested with
the most advanced CNC
suppliers

8.
Modular and scalable
structure to simplify
diagnostics and
maintenance

9.
Configurable milling and
turning tables for
seamless workbench
integration

A rigid monoblock structure made of electro-welded steel has been designed to guarantee stiffness and vibration damping during the most demanding operations



| | | |
|--------------------------------------|--------------------------------|---------------------------|
| X axis stroke | 2.000 mm | 79 in |
| Y axis stroke | 2.500 mm | 98 in |
| Z axis stroke | 800 / 1.000 mm | 32 / 39.4 in |
| X / Y / Z axes rapid feedrate | 50 / 50 / 40 m/min | 1,969 / 1,969 / 1,575 ipm |
| A axis rotation | -105° +120° / ±115° | |
| A axis rapid feedrate | 30 rpm | |
| C axis rotation | ±305° / endless | |
| C axis rapid feedrate | 30 rpm | |
| Spindle power S6 S1 | 41 - 37 110 - 83 40 - 40 | kW |
| Spindle torque S6 S1 | 89 - 62 115 - 87 137 - 100 | Nm |
| Spindle speed | 28.000 24.000 18.000 | rpm |
| Milling tool taper | HSK-A63 | |
| Table dimensions | 2.500 × 2.000 mm | 98 × 79 in |
| Table payload | 5.000 Kg/m2 | 1,024 lb/ft ² |

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 desire to explore new technologies, as integral part of the company's DNA, has in fact led to the establishment of the BIT (Breton Institute of Technology), where different dedicated teams design and test innovative solutions to develop materials that anticipate the needs of businesses.