

matrix e2



Created for mould & die makers, but perfect for aerospace too

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

The development of this machining centre was based on careful technical choices that combine thrust and robustness with dynamics and precision for perfect performance in hi-feed roughing, semi-finishing and finishing of medium-large workpieces in steel, lightweight alloys, and special composites.

breton

Breton Matrix E2

Matrix is a machining centre that combines the robustness and thrust required for roughing operations with the dynamics and precision needed for finishing. A stable and robust base that is also extremely dynamic, configurable with a broad range of components and accessories in order to handle entire machining processes in a large number of sectors.

The robust sandwich structure columns in arc welded and stabilised steel bring exceptional structural stiffness and a high level of vibration damping, both factors that translate into better surface finishing of machined workpieces and longer life of tools and components subject to wear. To guarantee surfaces with a superior finish and greater precision, Matrix E2 exploits High Dynamics and Thermal Shield technologies, both of which are exclusive to Breton.

All these factors combine to make this machining centre ideal for the world of large size moulds and dies, but with the correct configuration it is also perfect for machining work in the aerospace sector or in general precision engineering.



breton matrix E2

EXCLUSIVE TECHNOLOGIES

Breton Matrix E2 is equipped with the most advanced technologies to guarantee excellent machining performance.

High Dynamics



Direct Drive Head



High-speed milling



Thermostable



Thermal Shield



Dual Drive
(on X and Y axes)



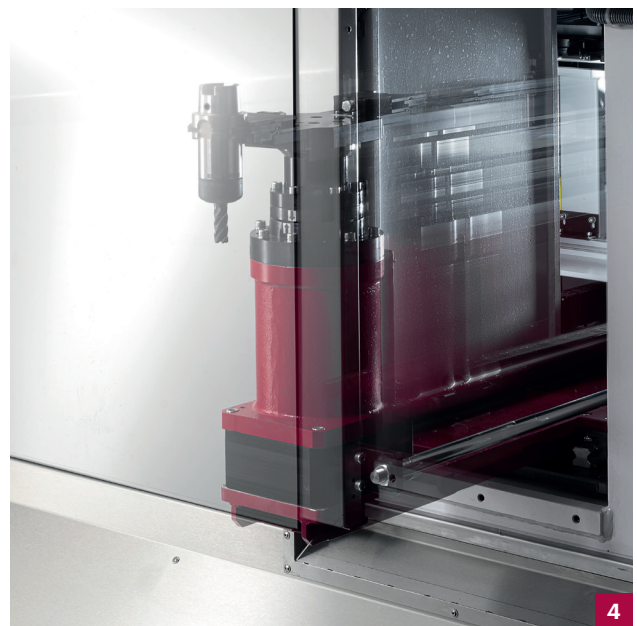
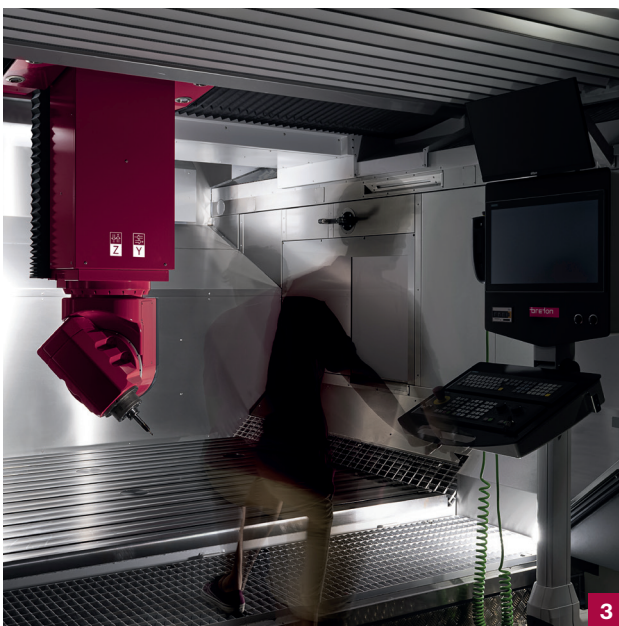
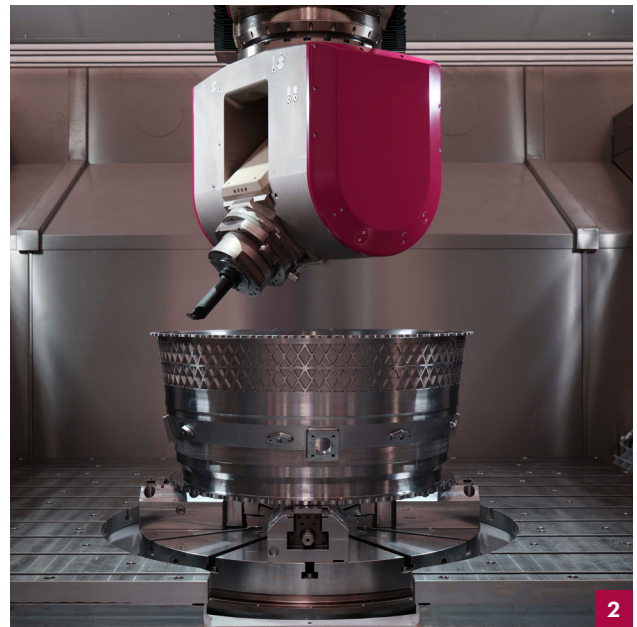
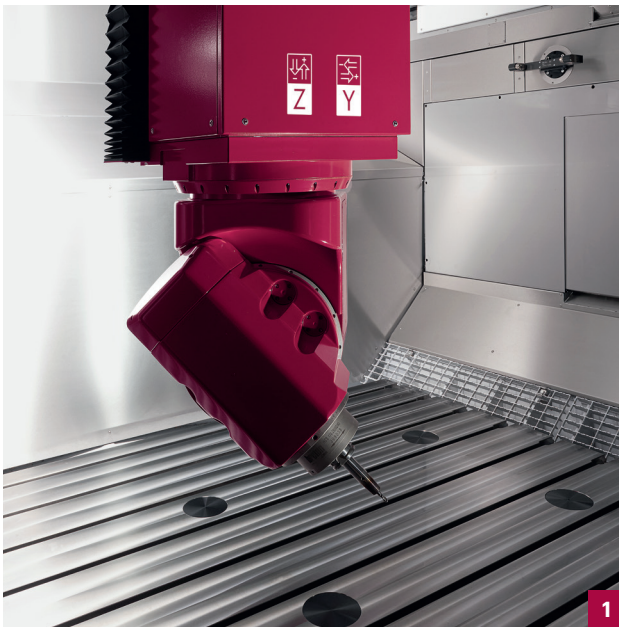
1. RAM among the sturdiest in the category

2. Configurable milling and turning tables for seamless workbench integration

3. Easy accessibility and reduced operating costs

4. Compact and fast exchanging arm compatible

Scan the QR code to discover more



5 reasons to choose Matrix E2

1 / Superior force, speed, and precision

The major benefit is having multiple production capabilities in a single solution: roughing, semi-finishing, finishing, measurement, inspection and quality control of surfaces.

Meticulous design and structural optimisation assisted by a digital twin made it possible to develop a machining centre that combines force and robustness for roughing phases with speed and precision for superfinishing operations. The Dual Drive motors on the 3 linear axes, together with precisely engineered rack and pinion systems with linear scales and encoders, provide the perfect solution for high speeds, high thrust force, and extreme precision.

2 / Installation and operating costs reduced to the minimum

Using an advanced lubrication system not only results in the elimination of dirt, workpiece staining, and harmful mists, it also slashes maintenance and running costs.

In turn, the Rexroth CytoPac hydraulic power unit helps reduce energy consumption by means of variable pressure management strategies. The Thermal Shield system applied to the Matrix E2 thermo-symmetrical structure guarantees optimal control of thermal expansion without resorting to costly cooling systems.

An efficient chip evacuation system and the use of stainless steel claddings mean the work area is always clean and reduce the need for human intervention.

3 / Maximum ergonomics and safety

The work table is easily accessible and the top bellows assure fast and safe workpiece loading-unloading operations with overhead cranes. The work area is fully enclosed to prevent the egress

of chips, dust or potentially hazardous fumes for the operator. Excellent visibility of machining operations is assured by large shatterproof and scratch resistant windows plus internal cameras linked to the control panel.

4 / Advanced connectivity and technology

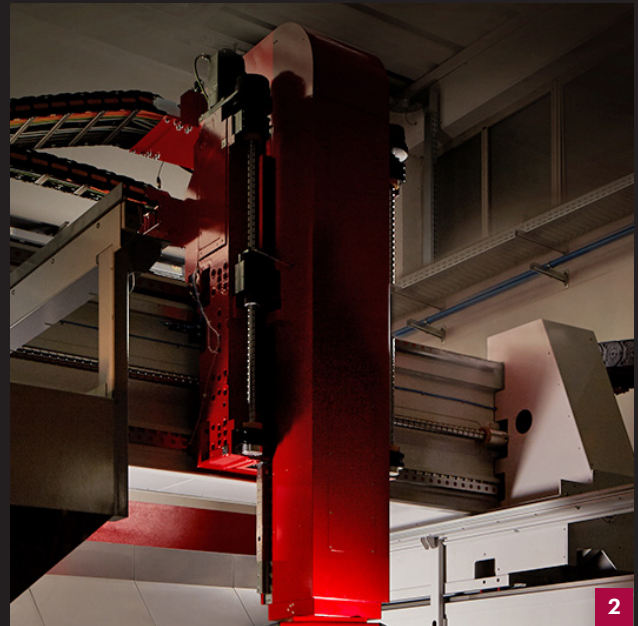
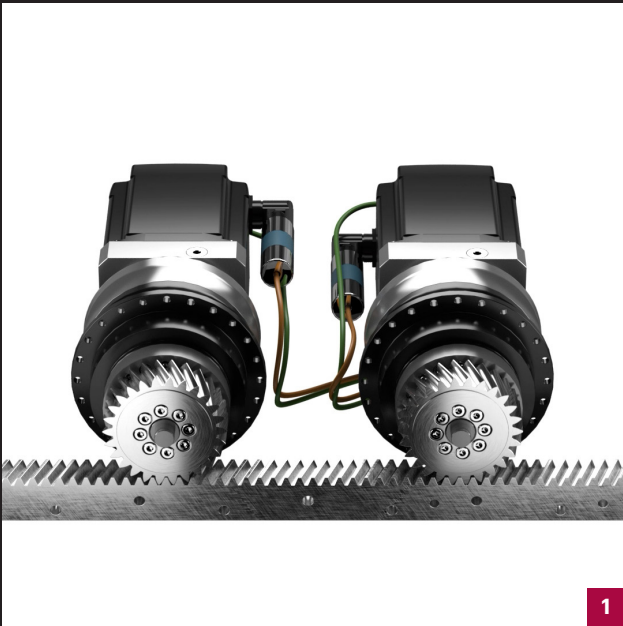
Matrix E2 was developed by exploiting the capabilities of the digital twin which, thanks to simulations conducted in a virtual environment, allows targeted optimisation of design choices with consequent gains in performance.

Matrix E2 is available with the very latest Heidenhain and Siemens controls. The machine is fully connectorised for rapid programming and maintenance. This solution allows integration with Industry 4.0 software to analyse operating statistics, optimise operations, and for predictive maintenance.

5 / Designed around your needs

Matrix E2 is available in two configurations, X stroke of 2.5 or 4 metres, chosen to assure compatibility with the workpieces typical of applications in sectors such as mould & die, aerospace, and similar. The machine can be equipped with dedicated accessories depending on whether it is to be used for wet or dry machining of special composites, aluminium, steel, or superalloys.

Matrix E2 is available with a large number of accessories for all application types such as heads/motor spindles and various automation types for workpiece loading/unloading operations.



1. Dual drive motors
2. Exceptionally solid RAM
3. Stainless steel work area
4. Tool changer incorporated in the column or circular tool store
5. Optimised maintenance corner



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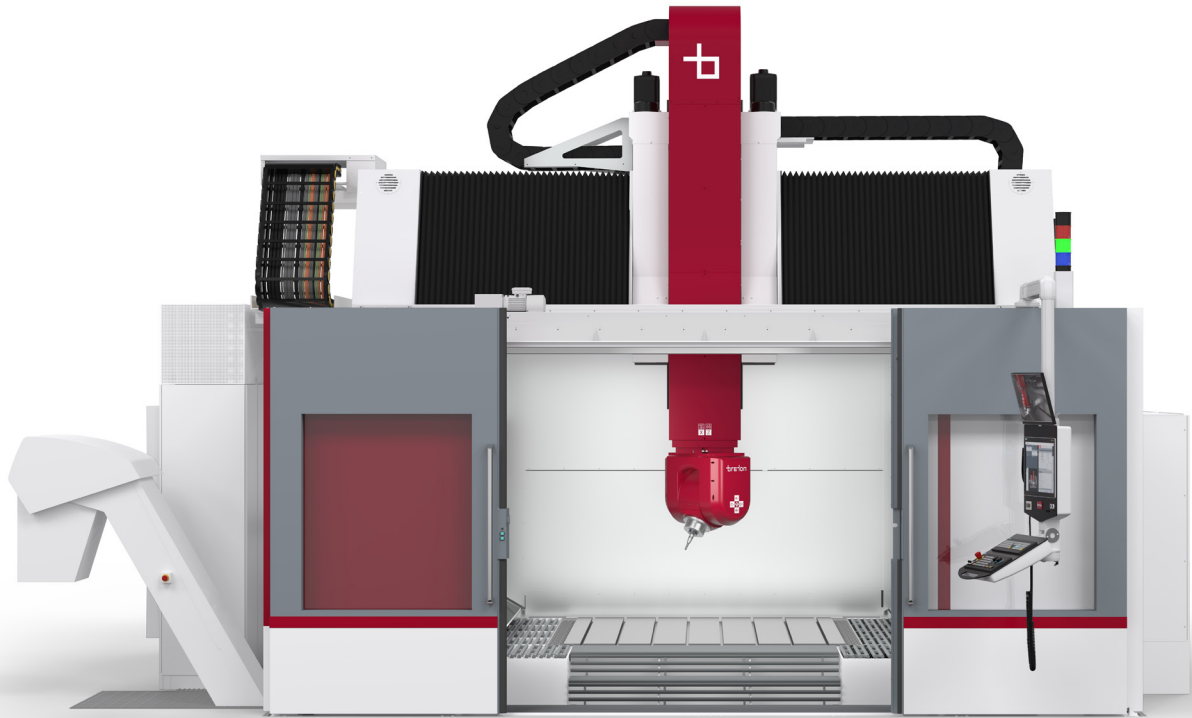
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Heads available on Matrix E2

- 6. Typhoon
- 7. Typhoon HD
- 8. Phoenix
- 9. Tornado



MATRIX E2 1100 K25

MATRIX E2 1100 K40

| | MATRIX E2 1100 K25 | MATRIX E2 1100 K40 |
|---|---------------------------|---------------------------|
| "X" axis travel | 2500 mm | 4000 mm |
| "Y" axis travel | 2500 mm | 2500 mm |
| "Z" axis travel | 1100 mm | 1100 mm |
| "X" axis rapid feed rate | 50 m/min | 50 m/min |
| "Y" axis rapid feed rate | 50 m/min | 50 m/min |
| "Z" axis rapid feed rate | 40 m/min | 40 m/min |
| "A" axis travel | -105 - 120 ° | -105 - 120 ° |
| "A" axis rapid speed | 30 rpm | 30 rpm |
| "C" axis travel | ±305° / endless | ±305° / endless |
| "C" axis rapid speed | 30 rpm | 30 rpm |
| Dimensions of the workbench (width) | 2000 mm | 2000 mm |
| Dimensions of the workbench (length) | 2500 mm | 4000 mm |

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.