



High-end CNC machines
for advanced materials

WORLDMAQ-3, SL

Technology and Innovation

WORLDMAQ-3 SL is a leading company in the design and manufacturing of multi-axis CNC machines for milling and grooving non-ferrous materials (lightweight alloys, composites, plastics, and wood). The company has participated in large-scale projects for major aerospace firms such as Airbus, Aercal, Aernnova, Aciturri, among other prominent references in the sector.

Over the years, we have grown by continuously adapting to the challenges posed by the rapid pace of technological advancement. Industry, processes, production needs, and materials — everything changes and is the driving force that motivates us to continuously improve our machines to guarantee the highest levels of performance, precision, and reliability.

Our goal is to grow with you to take your company and your projects to the peak of success.





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Overview

Aluminium machining

Precision in aluminum machining: tolerances of up to 0.009 mm for the manufacturing of critical aerospace components that must comply with high-precision standards.

High structural rigidity: robust design that minimizes vibrations during machining, resulting in a high-quality surface finish.

Adaptability to different aluminum thicknesses: they automatically adjust cutting speeds and depths according to the material's thickness and characteristics, ensuring consistent results.

Cycle time optimization: enables high-speed machining of aluminum sheets, reducing cycle times and increasing operational efficiency in part production.

Multi-material capability: in addition to aluminum, they can work with a wide range of materials, providing flexibility to meet different production requirements in the aerospace sector.

Reduced tool wear: thanks to its precision and dynamic control, tool wear is minimal, extending tool life and reducing maintenance costs.





Composite machining

Precision in complex geometries: the ability to program complex trajectories is crucial for the trimming of composite parts that require aerodynamic finishes and precise details.

Efficient handling of abrasive materials: the robust design and vibration control allow working with abrasive materials such as carbon fiber without compromising machining quality.

Trimming process: incorporating nesting for the effective placement of multiple shapes on the designated surface within the composite part, managed with parameters that ensure maximum cutting quality, and finally treated with micro-cutting for easy removal of leftover scraps.

Specialized suction system: integrated system that removes fine particles generated during composite machining, ensuring a clean and safe working environment.
High speed and versatility: high-speed trimming of parts without the need for constant reconfiguration, improving productivity.

Reliability and consistency: constant and reliable performance, essential for meeting the strict quality standards of the aerospace industry.

State-of-the-art materials

Smart, lightweight, durable, resistant and highly-performant !

Compound materials (composites): carbon fiber + epoxy resin; glass fiber + polyester/vinylester, thermoplastic matrix materials or sandwich composites (with foam or honeycomb core), honeycomb panels such as Nomex®, Cormaster®.

Technical plastics: PEEK, PA6 / PA66, Delrin, rigid PVC, PTFE, PE-HD/PP, PMMA.

Technical foams: high-density PVC, PUR, or PET foams (sandwich core).

Compound materials (polymeric matrix + mineral filler): Solid Surface (Corian®, Krion®, Avonite®, etc.).





Shaping the future

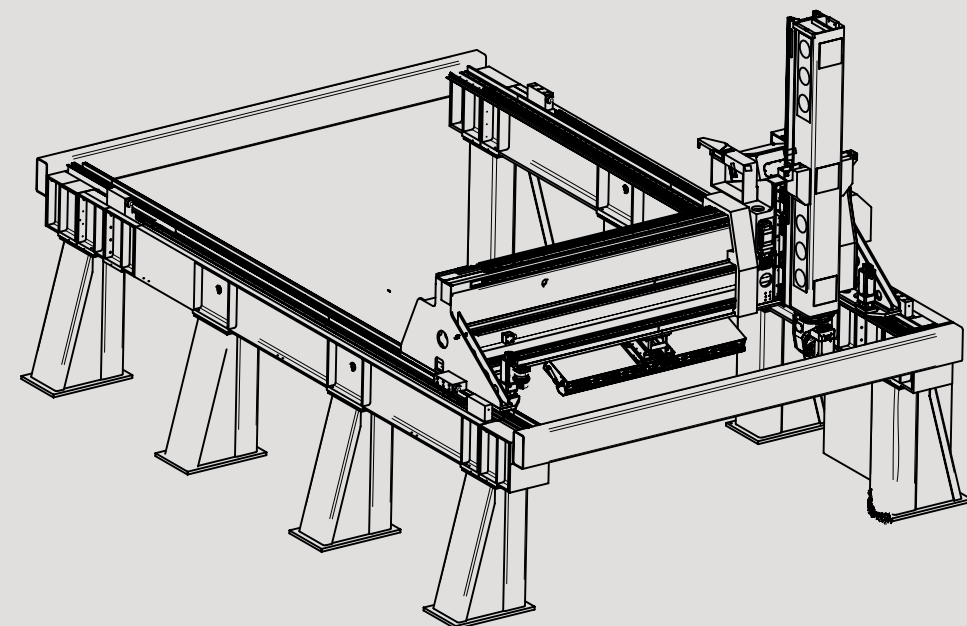
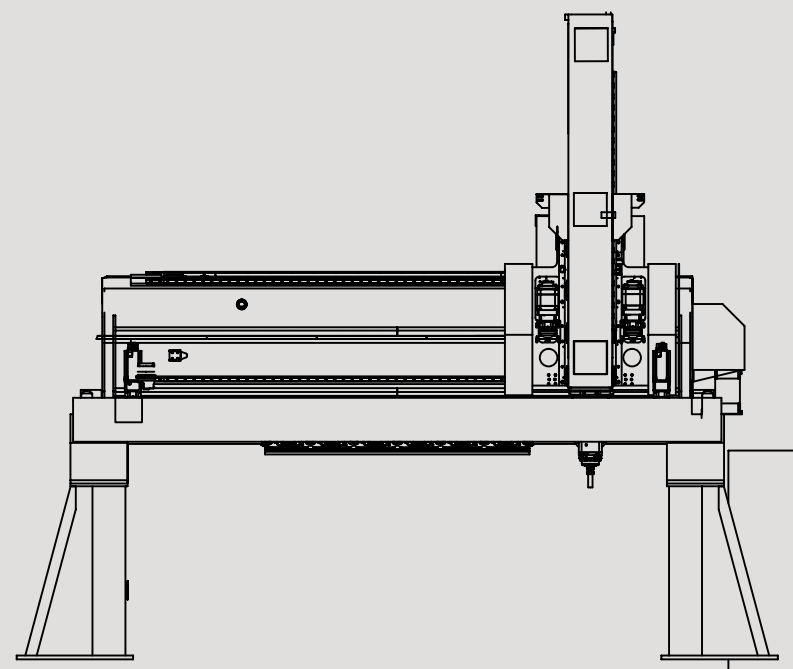
Aerospace & Defense: machining of aerospace components such as wings, fuselage sections, stabilizers, movable elements and secondary structures, composite components, and parts made of non-ferrous materials.

Marine: cutting, forming, and milling of large plates and structural components used in hull construction, molds, decks, bulkheads, and frames. Prototypes of new designs or testing of new materials for marine applications.

Railway: structural and body components, aluminum panels for train bodies, interior fittings, door frames, lightweight composite components (CFRP and GFRP panels).

Wind Energy: rotor and blade components, such as blade molds machined from aluminum, wood, resin, or composite materials to create precise aerodynamic profiles for fiberglass or carbon blades.

Automotive: high-precision parts and structural elements for the automotive sector in the production of limited series or exclusive designs. Our machines allow machining of complex and intricate designs with high precision, ensuring tight tolerances and consistent quality.



| SGline

The SG line includes BERMAQ Gantry-type milling machines. The structure consists of vertical columns on both sides of the working area, supporting the moving bridge with its carriage and milling head. The bridge moves longitudinally along the columns (Y-axis), while the head carriage travels from left to right across the bridge (X-axis).

Gantry-type CNC milling machines are ideal for machining large and highly complex parts, as they allow working on large surfaces without compromising accuracy. Their moving-bridge design provides excellent mass distribution and greater structural rigidity, resulting in increased stability during machining. In addition, this type of architecture allows the integration of multiple heads or tools, optimizing production times and enhancing the machine's versatility.



HIGHLIGHTS SG XXL



Open structure
Gantry-type CNC milling machine.



Telescopic Z axis
For heights over 2 meters.



XXL machine
For large-size parts.



Maximum rigidity
Robust and reliable.



Anti-backlash system
Dual servomotor: guaranteed bidirectional precision.

TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	10.000 - 60.000 mm	X-axis feed rate	100 m/min
Working width (Y)	4.000 - 10.000 mm	Y-axis feed rate	100 m/min
Working height (Z)	2.500 - 5.000 mm	Z1 & Z2	25 m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-110°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	24 kW	Accuracy	+/-0'05 mm
Rated spindle speed	10.000 rpm	Repeatability	+/-0'02 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Linear-type tool changer	8-24 positions	SIEMENS - HEIDENHAIN - FANUC	



SG-XXL

HIGHLIGHTS SG-A



Rigidity and strength
Reinforced model with linear encoders.



Anti-backlash system
Dual servomotor: guaranteed bidirectional precision.



Robust and reliable
High-quality end results.



High precision
Total control in every movement.

TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	1.500 a 4.000 mm	X-axis feed rate	60 m/min
Working width (Y)	3.000 a 10.000 mm	Y-axis feed rate	60 m/min
Working height (Z)	1.200 a 2.500 mm	Z-axis feed rate	20 m/min
C-axis rotation	+/- 220°	C-axis feed rate	116°/sec
A-axis rotation	+/-110°	A-axis feed rate	87°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	20 kW - 34 kW	Accuracy	+/-0'006 mm
Rated spindle speed	10.000 rpm	Repeatability	+/-0'003 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Linear-type tool changer	12-24-60 positions	SIEMENS - HEIDENHAIN - FANUC	



SG-A

HIGHLIGHTS SG-5



Compact design
Gantry-type CNC milling machine.



High-speed machining
Take your production to the next level.



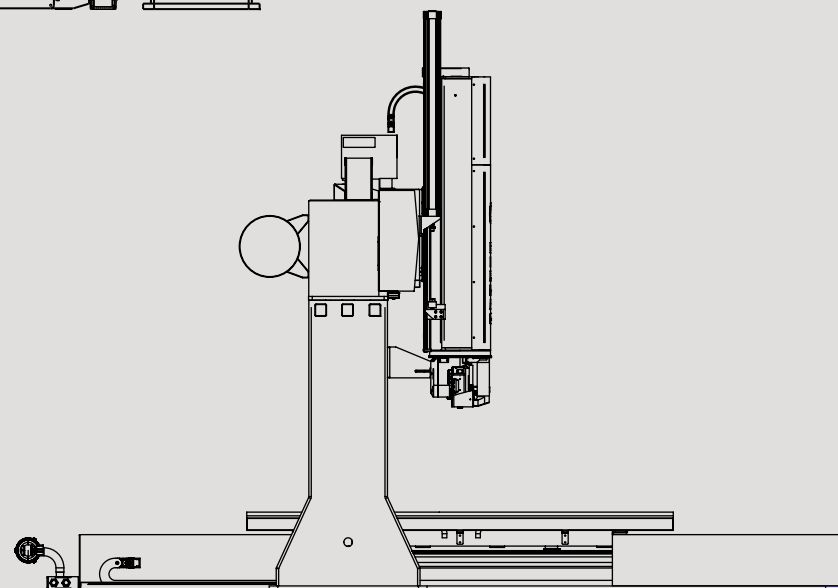
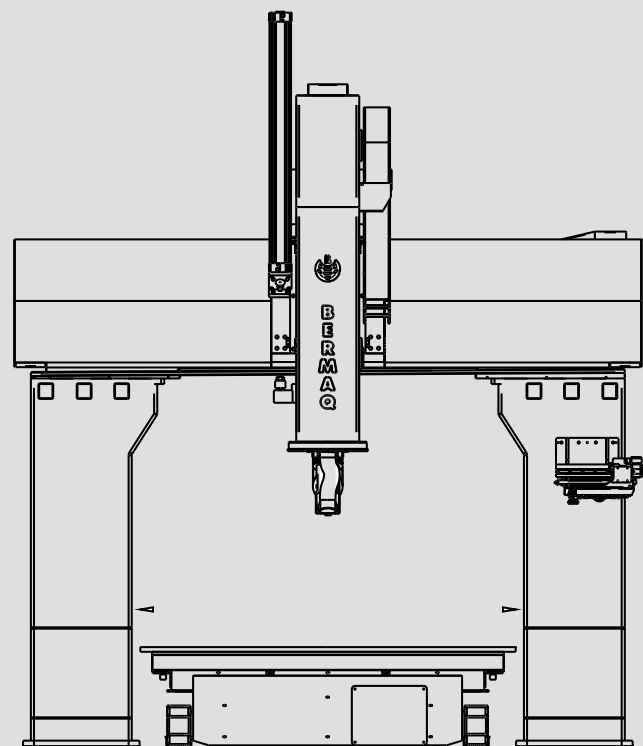
High production
Speed, precision, and repeatability.

| TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	2.000 a 4.000 mm	X-axis feed rate	60 m/min
Working width (Y)	5.000 / 10.000 mm	Y-axis feed rate	60 m/min
Working height (Z)	1.250 - 2.000 mm	Z-axis feed rate	25m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-110°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	15 kW - 24 kW	Accuracy	+/-0'02 mm
Rated spindle speed	10.000 rpm	Repeatability	+/-0'01 mm
Maximum spindle speed	24.000 / 36.000 rpm	NUMERICAL CONTROL	
Linear-type tool changer	12-24-36 positions	SIEMENS - HEIDENHAIN - FANUC	



SG-5



| CRline

The CR series of milling machines has been specifically designed for high-speed machining of non-ferrous materials such as wood, aluminum, polystyrene, and resins. Robust and highly precise, the CR line is the ideal solution for the manufacturing of models and molds.

Its modular design allows for multiple configurations—with one or two tables and one or two simultaneous heads—providing exceptional flexibility and productivity. Optimized for continuous 5-axis machining, the CR is perfect for high-volume manufacturing environments that demand precision, efficiency, and adaptability.



HIGHLIGHTS CR-2



Robust and solid
Built to last, designed to perform.



High production
Continuous performance, without interruptions.



Modular design
2 tables, 2 milling heads.

TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	6.000 mm (3.000 x 3.000)	X-axis feed rate	40 m/min
Working width (Y)	4.000 mm	Y-axis feed rate	40 m/min
Working height (Z)	1.250 mm	Z1 & Z2	20 m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-110°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	12 kW, 16 kW, 22 kW	Accuracy	+/-0'025 mm
Rated spindle speed	12.000 rpm	Repeatability	+/-0'015 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Tool changer	16-24 positions	SIEMENS - HEIDENHAIN - FANUC	



CR-2

HIGHLIGHTS CR



Robust and solid
Built to last, designed to perform.



High production
Designed for the production of complex parts.



Configurable design
It adapts to your needs.

| TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	2.500 / 3.000 mm	X-axis feed rate	40 m/min
Working width (Y)	1.500 / 2.000 / 4.000 mm	Y-axis feed rate	40 m/min
Working height (Z)	800 mm; up to 1.250 mm	Z-axis feed rate	20 m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-110°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	Up to 22 kW	Accuracy	+/-0'025 mm
Rated spindle speed	12.000 rpm	Repeatability	+/-0'015 mm
Maximum spindle speed	24.000 / 36.000 rpm	NUMERICAL CONTROL	
Tool changer	16-24 positions	SIEMENS - HEIDENHAIN - FANUC	



HIGHLIGHTS MX



CR inspiration
The most compact and accessible choice.



High speed
Continuous performance.



User-focused machine
Comfort at every step.

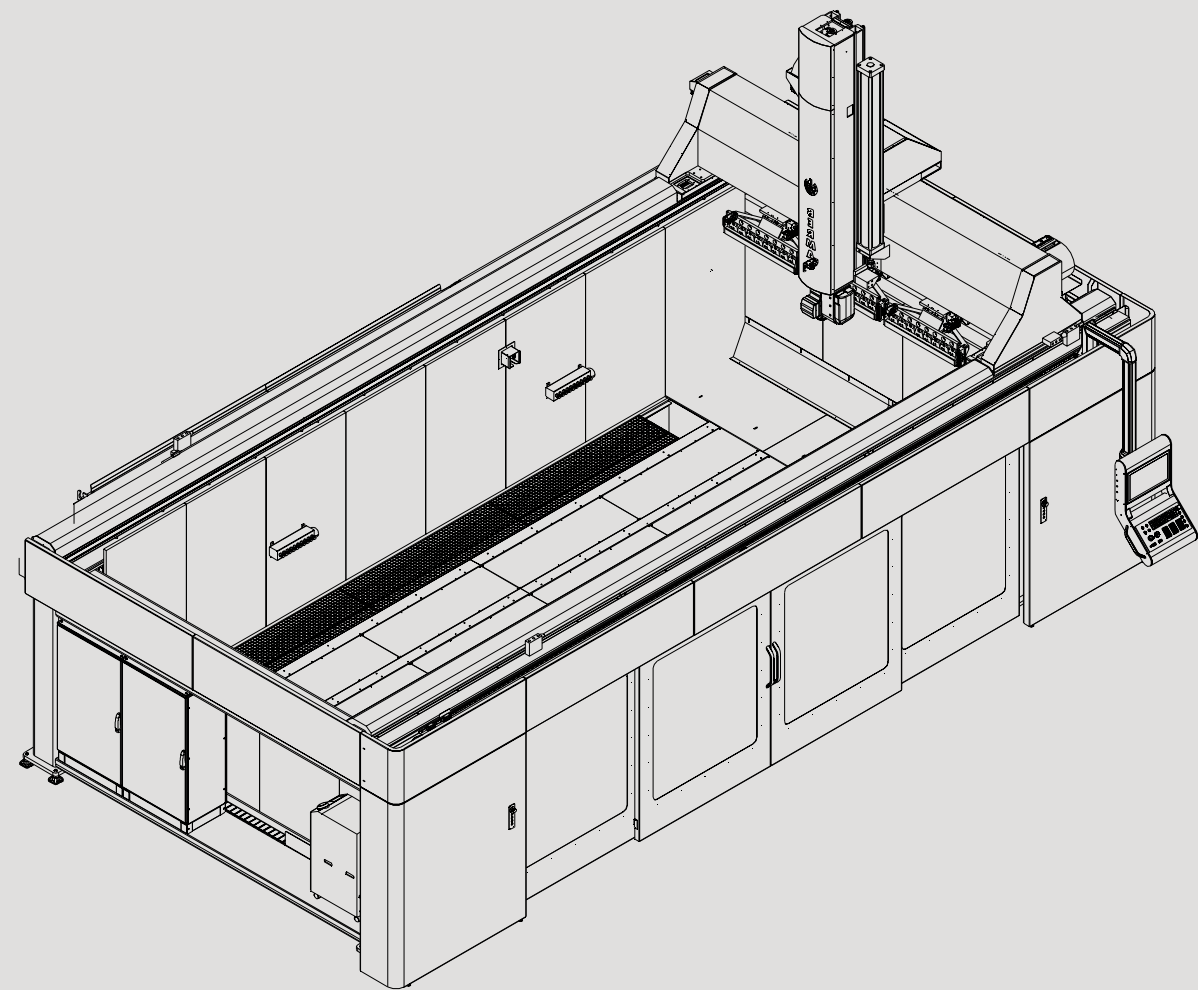
TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	2.000 a 3.000 mm	X-axis feed rate	50 m/min
Working width (Y)	1.000 a 2.500 mm	Y-axis feed rate	50 m/min
Working height (Z)	1.000 mm	Z-axis feed rate	20 m/min
A-axis (manual)	+/-110°	A-axis feed rate	-
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	12 kW	Accuracy	+/- 0,03 mm
Rated spindle speed	10.000 rpm	Repeatability	+/- 0’015 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Tool changer	Up to 24 positions	SIEMENS - HEIDENHAIN - FANUC	



MX





| LINKline

The LINK series consists of high-speed CNC milling machines designed with a fully enclosed structure to ensure maximum safety, cleanliness, and noise reduction in the working area. Ideal for precision machining of technical plastics, composites, and non-ferrous materials, the LINK offers a compact footprint without compromising power, versatility, or accessibility. Its enclosed design also improves dust containment and operator protection, making it perfect for demanding industrial environments.



HIGHLIGHTS LINK



Compact design

Power in a small space.



Maximum performance

across a wide range of materials.



Enclosed machine

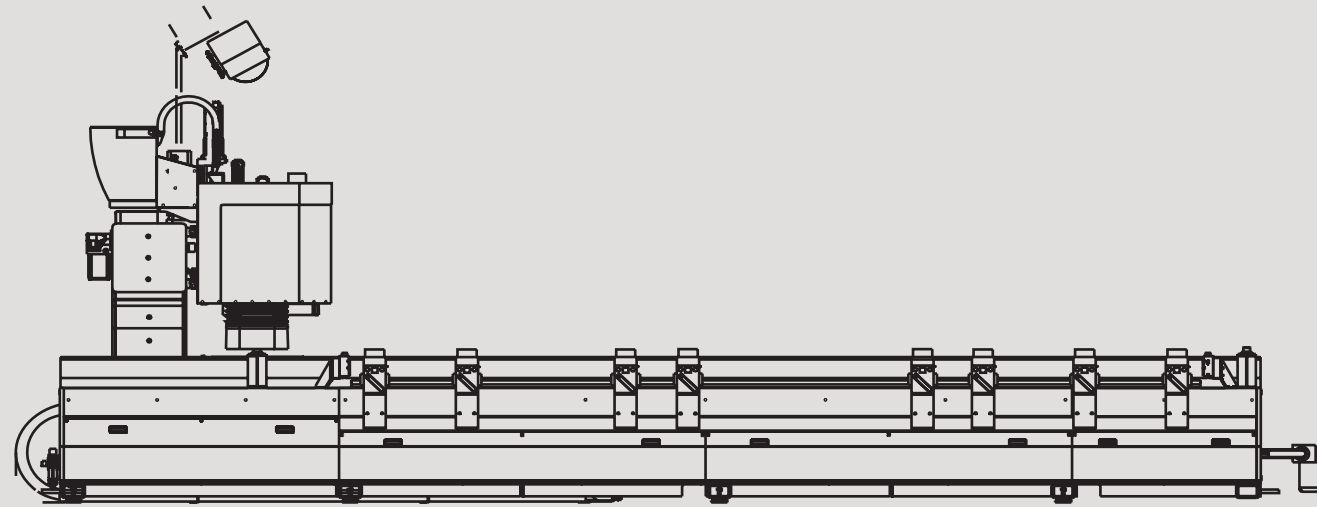
Maximum protection, minimal noise.

| TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	2.000 / 4.000 mm	X-axis feed rate	60 m/min
Working width (Y)	1.650 / 2.000 mm	Y-axis feed rate	60 m/min
Working height (Z)	800 mm	Z-axis feed rate	30 m/min
C-axis rotation	+/- 220°	C-axis feed rate	75°/sec
A-axis rotation	+/-110°	A-axis feed rate	75°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	Up to 15 kW	Accuracy	+/-0'04 mm
Rated spindle speed	12.000 rpm	Repeatability	+/-0'025 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Tool changer	8-16 positions	SIEMENS - HEIDENHAIN - FANUC	

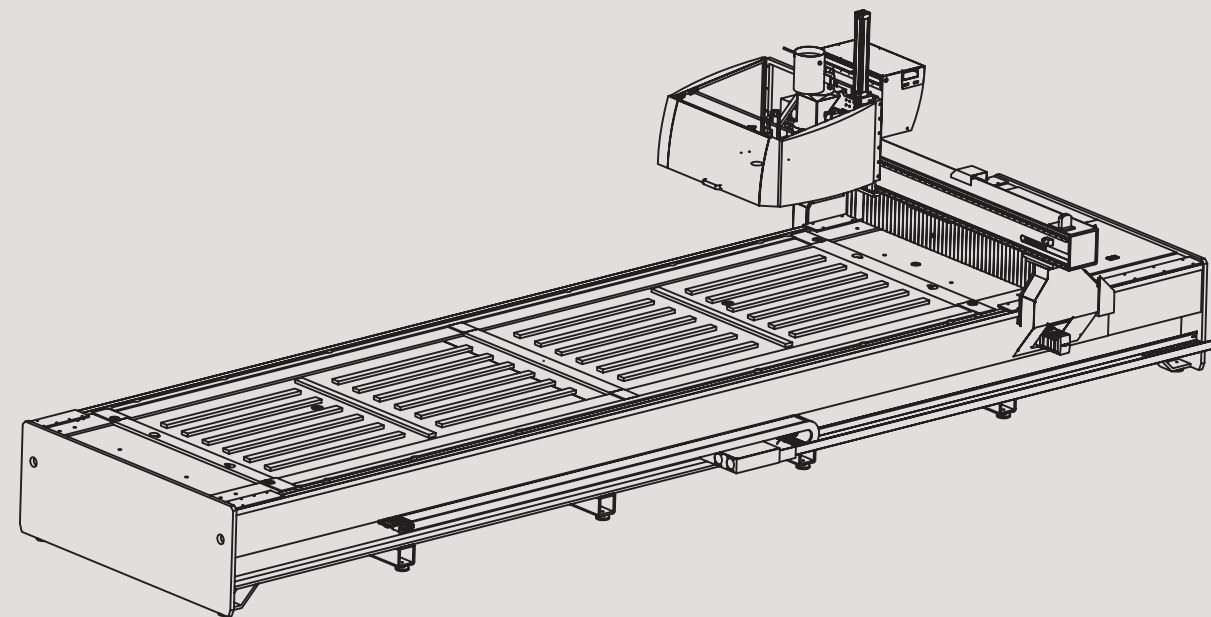


LINK



| FCNline

The BERMAQ FCN range of milling machines is presented as a versatile and powerful solution for high-precision machining. Designed as modular machining centers, these machines offer multiple possible configurations—including different types of tables for workpiece clamping and customizable heads—to adapt to the specific needs of each client and sector. Their structural robustness, combined with dynamic 5-axis control, makes the FCN the ideal choice for demanding production environments that require flexibility, continuous performance, and maximum reliability.



HIGHLIGHTS FCN



XL extra-long
Up to 14 meters of usable working area.



Demanding work requirements
Guaranteed success for your manufacturing project.



XXL milling machine
For large-sized parts.

| TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	Up to 20.000 mm	X-axis feed rate	60 m/min
Working width (Y)	Up to 3.800 mm	Y-axis feed rate	60 m/min
Working height (Z)	1.250 mm	Z-axis feed rate	25 m/min
C-axis rotation	+/- 200°	C-axis feed rate	135°/sec
A-axis rotation	+/-90°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	Up to 20 kW	Accuracy	+/-0'053 mm
Rated spindle speed	12.000 rpm	Repeatability	+/-0'015 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Tool changer	18 positions	SIEMENS - HEIDENHAIN - FANUC	



FCN

HIGHLIGHTS FCN-2



Double milling head
Double production; pendulum operation.



Demanding work requirements
Designed to overcome any challenge.



High production
Continuous output; maximum efficiency.

| TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	4.000 - 10.000 mm	X-axis feed rate	60 m/min
Working width (Y)	1.500 - 3.000 mm	Y-axis feed rate	60 m/min
Working height (Z)	Up to 800 mm	Z-axis feed rate	40m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-110°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	Up to 20 kW	Accuracy	+/-0'053 mm
Rated spindle speed	10.000 rpm	Repeatability	+/-0'015 mm
Maximum spindle speed	36.000 rpm	NUMERICAL CONTROL	
Tool changer	12-16 positions	SIEMENS - HEIDENHAIN - FANUC	



FCN-2

HIGHLIGHTS FCN-A



Slotted vacuum table

Versatile workpiece clamping by vacuum or clamp.



Maximum rigidity and high precision

Designed for demanding work.

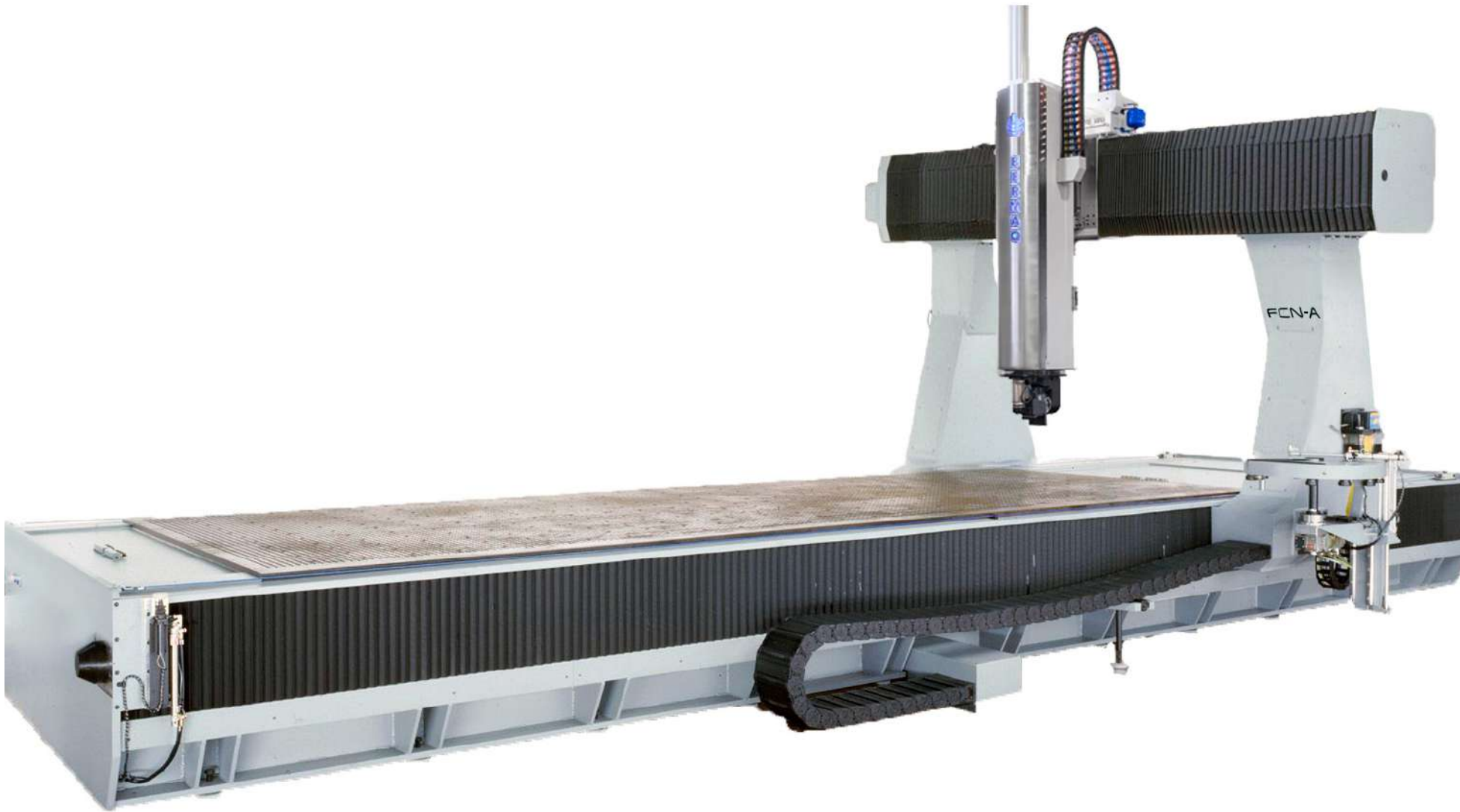


Aluminium machining

Reinforced model with linear encoders.

TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	2.000 / 4.000 / 6.000 mm	X-axis feed rate	40 m/min
Working width (Y)	Up to 3.000 mm	Y-axis feed rate	40 m/min
Working height (Z)	800 mm	Z-axis feed rate	20 m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-110°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	Up to 24 kW	Accuracy	+/-0'025 mm
Rated spindle speed	10.000 rpm	Repeatability	+/-0'015 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Tool changer	12-16 positions	SIEMENS - HEIDENHAIN - FANUC	



FCN-A

HIGHLIGHTS VISCOM 5x



Customizable
Flexibility for every project.



High-speed machining
Faster. More precise. More profitable.



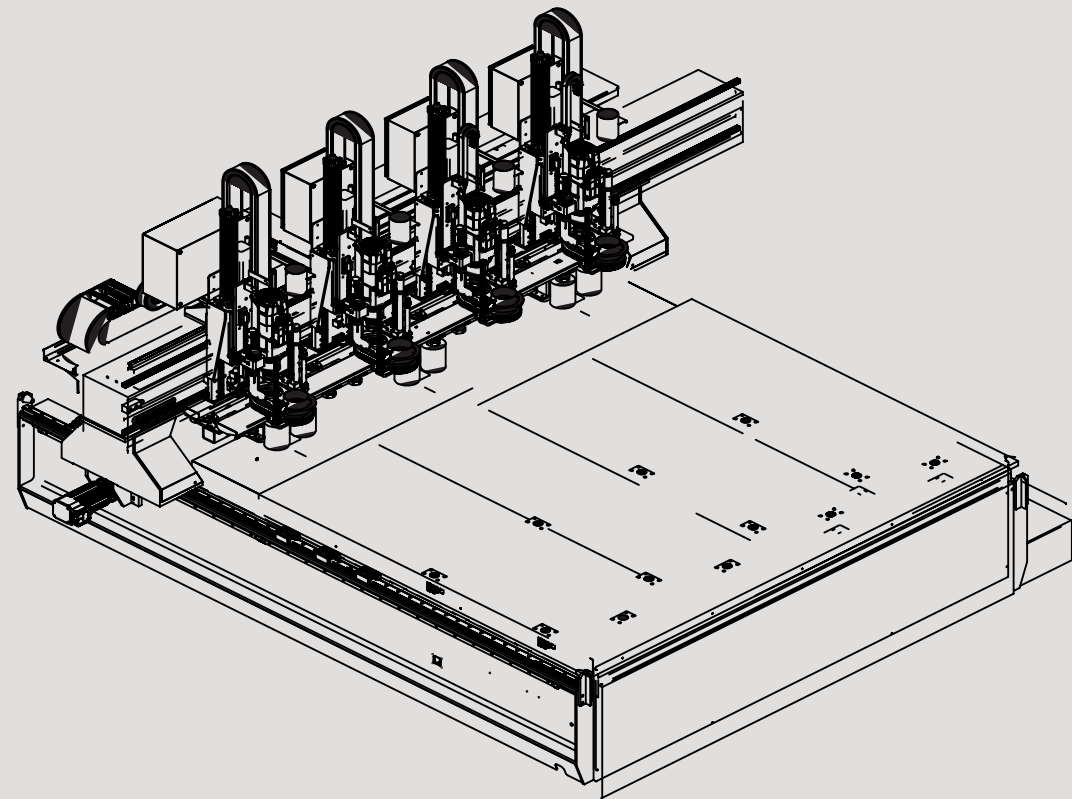
Versatile and flexible
Meets any production challenge.

| TECHNICAL FEATURES

WORKING AREA		AXES FEED RATE	
Working length (X)	Up to 14.000 mm	X-axis feed rate	55 m/min
Working width (Y)	1.500 to 3.000 mm	Y-axis feed rate	55 m/min
Working height (Z)	500 mm	Z-axis feed rate	15 m/min
C-axis rotation	+/- 220°	C-axis feed rate	135°/sec
A-axis rotation	+/-180°	A-axis feed rate	135°/sec
MILLING MOTOR & TOOL CHANGER		ACCURACY PARAMETERS	
Spindle power	Up to 18 kW	Accuracy	+/-0'05 mm
Rated spindle speed	10.000 rpm	Repeatability	+/-0'025 mm
Maximum spindle speed	24.000 rpm	NUMERICAL CONTROL	
Tool changer	8-12 positions	SIEMENS, FANUC, OSAI	



VISCOM-5X



| Custom-made machines

At BERMAQ®, we specialize in the design and manufacture of custom-made machines tailored to the specific needs of each client.

Whether for complex milling or unique processing requirements, our engineering team works closely with clients to develop innovative solutions that optimize performance, efficiency, and quality in every production process.



Impossible is not an option

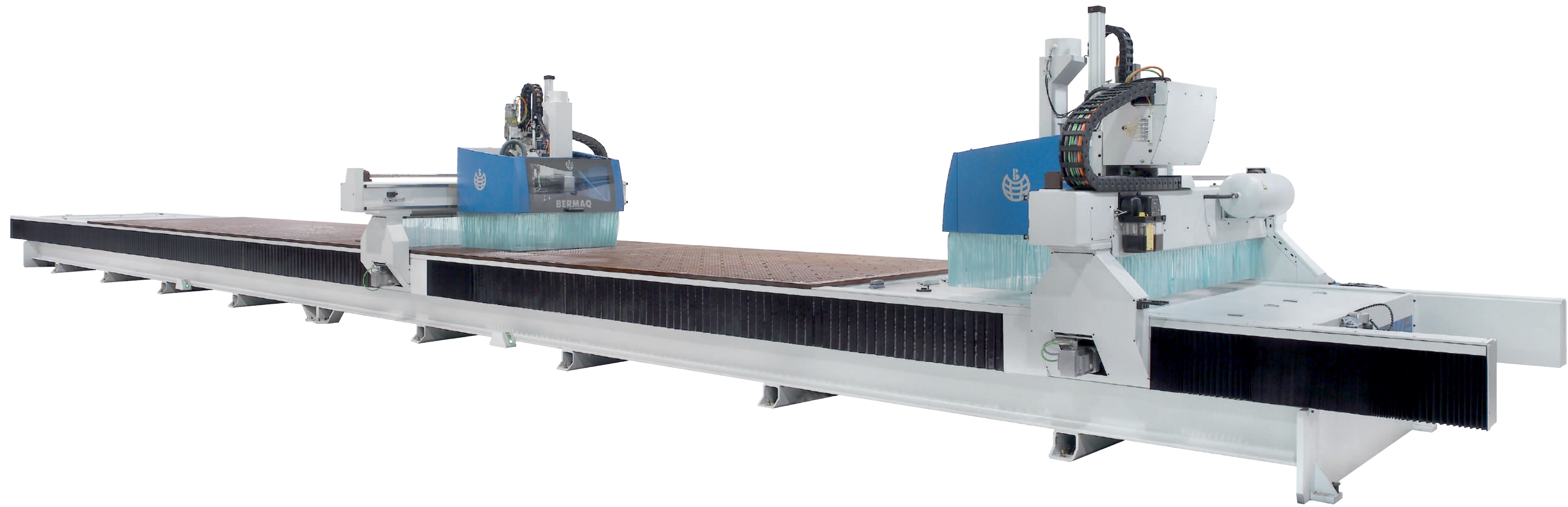
Over the years, BERMAQ has designed and manufactured special machines tailored to the productive needs of each client.

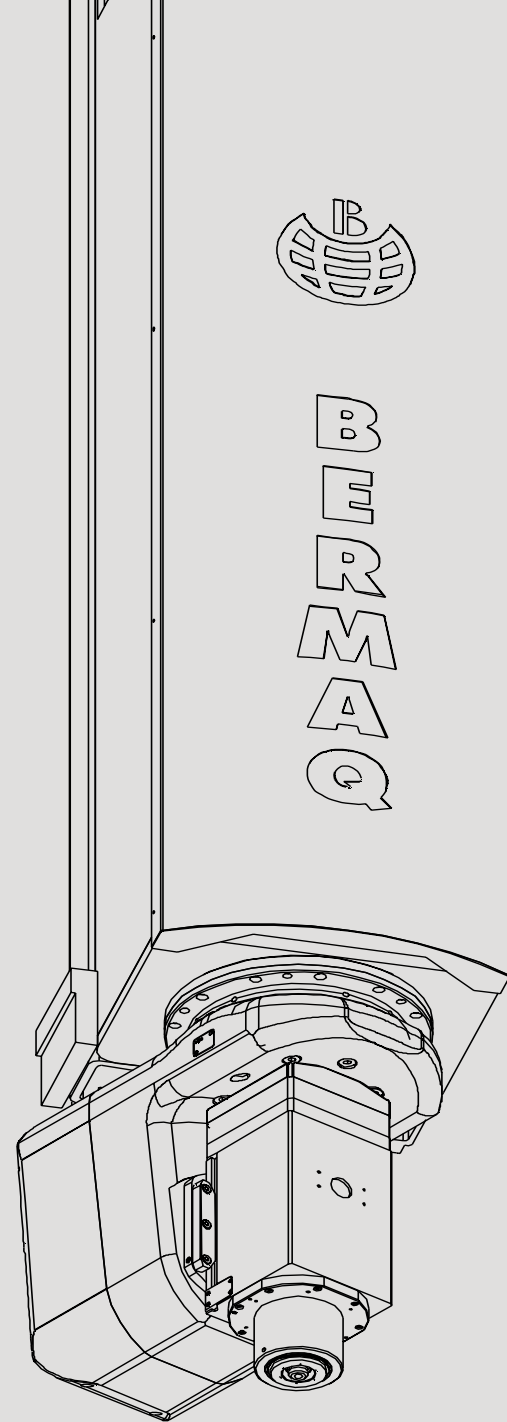
Machines with multiple heads, special configurations, and unique solutions designed to optimize processes and maximize production efficiency.

At BERMAQ, every limit is a challenge. We believe in innovation, flexibility, and custom engineering. Because each client is different, and so is their production.

An example of tailor-made engineering, combining versatility and performance, is the FCN-P XXL, designed to process large parts (up to 12 meters in length). The machine features two gantries and independent machining units, each with its own parking area, allowing one gantry to work along the entire length of the workspace while the other remains idle. Alternatively, both gantries can operate simultaneously and independently in four work zones, each measuring 3,125 mm x 2,100 mm.

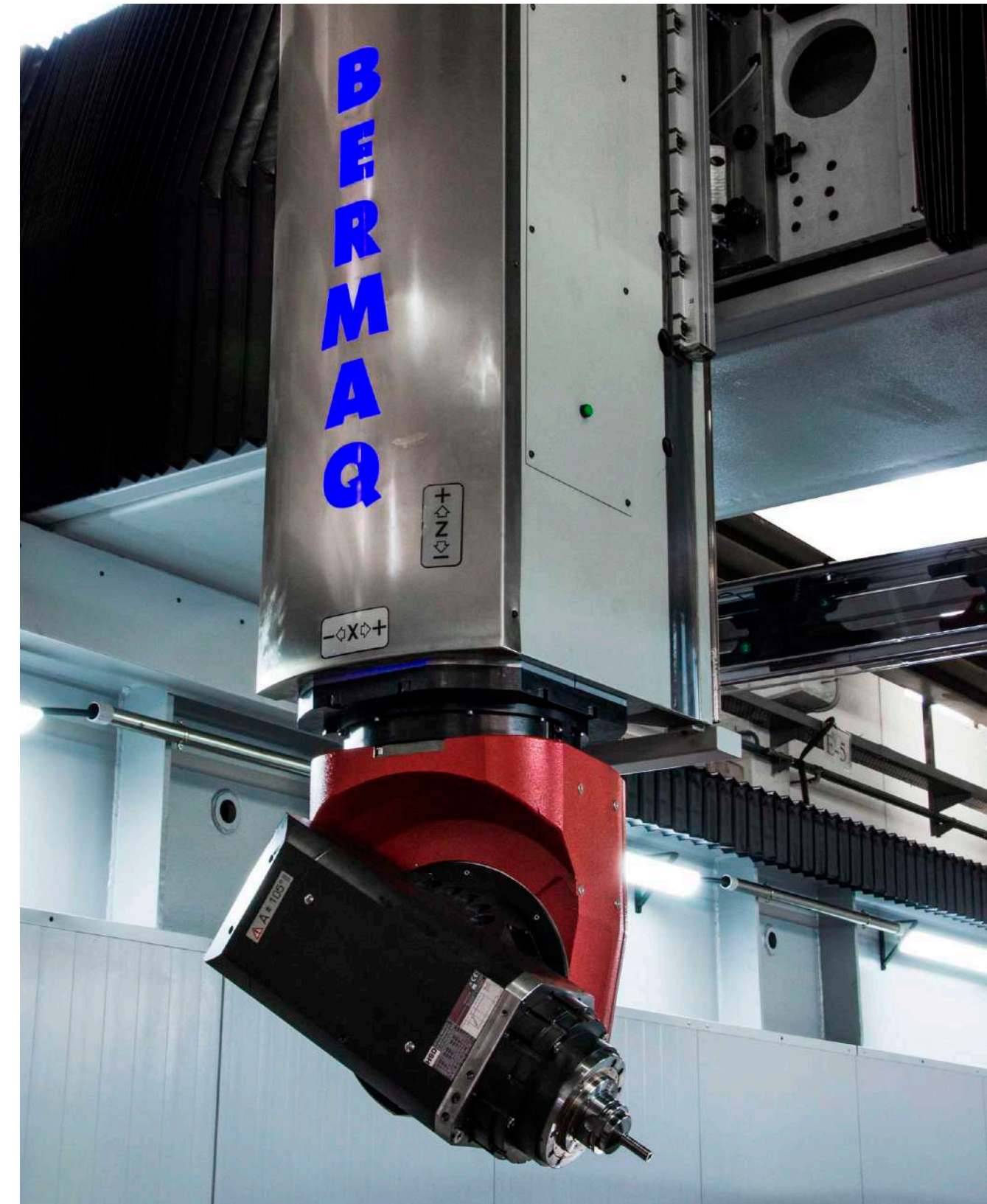
Every challenge invites us to discover opportunities, approaching each project with an open, adaptable perspective aligned with technological innovation.





Head versatility

BERMAQ CNC machines offer the flexibility to install different heads with varying power levels, perfectly adapting to the specific needs of each application. This modular configuration provides greater versatility, whether for high-precision milling, demanding cuts, or specialized machining tasks. Heads up to 40 kW for demanding applications.





Parametric 3D drawing program

The machine design is created using a parametric 3D drawing program, ensuring all parts are identical to the final ones. This approach optimizes component arrangement and prevents interference between parts.



Structural analysis(CAE)

BERMAQ's Engineering Department uses CAE and finite element analysis to evaluate and improve the structure. This method is used to identify potential issues like vibrations, thermal conduction, and overstressing.



Kinematic calibration

The tooltip remains static while the axes move, enabling flexible machining from any angle with millimetric precision.



Renishaw Ballbar interferometer

Calculates the collected data's overall measurements of positioning accuracy (circularity, circular deviation) in accordance with international standards or in analysis reports.



FARO laser tracker

Verificaciones geométricas finales de la fresadora CNC con el track láser FARO para ajustar su precisión al máximo.



ISO 230-2:2024

Our machines undergo precision checks in accordance with ISO 230-2:2014, ensuring verification of axis positioning and repeatability.

Driven by **quality**



It's all about **trust**



At your **service**



Maintenance and TAS

Proper maintenance is key to extending the lifespan of your machine and avoiding unexpected issues. That's why we have designed maintenance packs that ensure optimal performance. We advise you to choose the most suitable option based on your machining center and activity.



Spare parts

We have a wide stock of original spare parts to ensure the optimal performance of our machines. From mechanical components to electronic spare parts, we offer everything necessary to guarantee efficient operation and extend the lifespan of your equipment.



Training

Our specialized team is responsible for explaining all the details about the operation and everything you need to know about your new machine, so you can get the maximum performance from it. Request online training or visit our facilities in person.



Full customization

By manufacturing the machines from scratch and being built piece by piece by our technicians, We are able to create a machine 100% adapted to our customer's needs.



Your project,

**Your
needs**

ORDER

PRODUCTION PROCESS

Design (CAD models)
Component Sourcing
Fabrication of Bases and Structures
Electrical Assembly
Programming
Calibration and Testing

ACCEPTANCE AND TRAINING

- Visual and Mechanical Inspection
- Functional Testing
- Verification of Accuracy and Performance
- Test Machining
- Software and CNC Verification
- Documentation and Training
- Machining Tests
- Final Acceptance
- Machine Operation Training

**Your
machine**

PRELIMINARY ADVISE

- Technical Report
- Feasibility
- Standard Machine Selection
- Custom-made machine
- Quotation / Budget
- Project Roadmap and Planning

ENGINEERING

- Requirements Definition
- Preliminary Design
- Detailed Design
- Prototyping and Testing
- Manufacturing Planning
- Documentation

QUALITY CONTROL

- Geometric Accuracy
- Positioning Accuracy
- Repeatability
- Backlash Deviation
- Axis Alignment
- Spindle Misalignment Testing
- Dynamic Performance
- Circular Interpolation
- Noise and Vibration
- Test Machining
- Safety System
- Accuracies according to ISO 230-2:2014

**Our
priority**



45
Countries

+40 years of experience

+3.500 m²

+1.300 machines installed

+45 countries





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