

MAR

CYLINDRICAL GRINDING MACHINES

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PASSION FOR GRINDING



THE COMPACT GRINDING

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ID CARD

X1000/1600 is a round grinding machine for external or internal diameters with moving column, suitable for machining pieces up to 1,000 mm. of length and a rotating diameter of 360 or 460 mm.

TECHNICAL SPECIFICATIONS

GENERAL DATA

Max. grindable length	1000 / 1600	mm.
Centres height (standard / optional)	180 / 230 *	mm.
Max. rotating diameter	360 / 460 *	mm.
Max. load between centres	200 / 300*	kg.
Max. hang weight	100 / 200*	kg.
Machine weight	10000 / 12000	kg.

"X" AXIS - DIAMETERAL MOVEMENT OF GRINDING CARRIAGE

Axis travel	400	mm.
Max. axis speed	12	m/min.
Axis resolution	0,0001	mm.
Standard transducer	absolute linear encoder	

"Z" AXIS - TRANSVERSAL MOVEMENT OF GRINDING CARRIAGE

Axis travel	1330 / 1980	mm.
Max. axis speed	12	m/min.
Axis resolution	0,0001	mm.
Standard transducer	absolute linear encoder	

UNIVERSAL BELT WORK HEAD / TORQUE *

Mounting taper	5 / 5 *	Morse
External taper	5 / 5 *	ASA
Max. speed	800	rpm
Spindle torque output	60 / 100 *	Nm.
Standard transducer	encoder / absolute ring *	

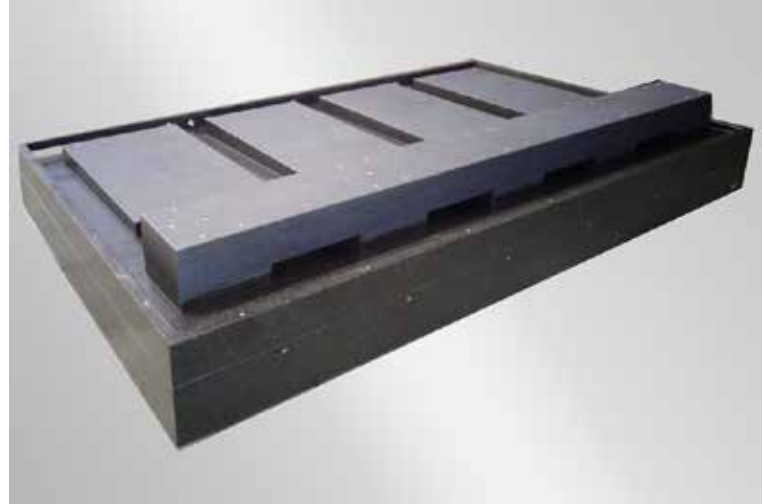
TAILSTOCK

Sleeve diameter	55 / 95 *	mm.
Sleeve stroke	45 / 170 *	mm.
Mounting taper	4 / 5 *	Morse
Max. weight between pointes	60 (spring) / 300 (hydraulic)*	kg.
Cilindricity correction range	+ / - 0,15	mm.

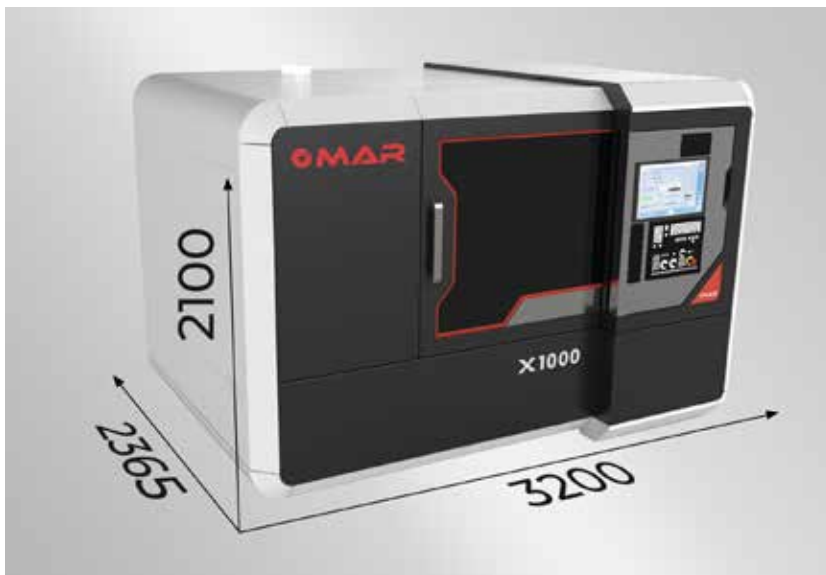
*Opzione

THE STARTING BLOCK

A granite monoblock natural is the excellent base of the **X1000/1600**. Only with these blocks of departure we can get the better grinding speed and quality, simultaneously ensuring long life. The granite, then, is worked in Italy with precision identical to that of the most accurate and precise test benches.



SPACE COSTS...



The project was born from the desire to create a medium-sized machine in a contained space.

The solution of the mobile carriage allows **X1000/1600** to contain its footprint on the ground in a space of 3,200 x 2,400 mm, without losing a record rigidity.

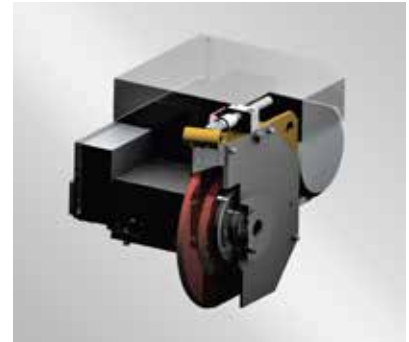
X1000/1600 it is also available with a dedicated piece loading system, to better optimize the occupied space., all managed by our operator interface.

FLEXIBLE UNIT

In the standard configuration, **X1000/1600** uses a left straight wheel spindle or a right swivelling spindle with several possible dimensions:

- Electerspindle on bearings 508 x 80 x 203.2 mm.
- Electerspindle on bearings 610 x 80 x 203.2 mm.
- Spindle on hydrodynamic bushes 508 x 100 x 203.2 mm.
- Spindle on hydrodynamic bushes 610 x 100 x 203.2 mm.
- Spindle on hydrodynamic bushes 610 x 130 x 304.8 mm.
- Spindle on hydrodynamic bushes 610 x 190 x 304.8 mm.

The peripheral speed is managed by the CNC for all versions, as well as the automatic wheel balancing integrated in the spindle together with a gap elimination sensor.



THE KINEMATICS AS YOU WANT



Whether you prefer a traditional kinematics, with brushless motors coupled to a recirculating ball screw, or a more powerful kinematics, with linear motors, the modularity and the flexibility of the support groups installed on **X1000/1600** guarantee your favorite version for both the transverse axis (X) and the longitudinal axis (Z).

WITH YOUR RIGHT HEAD

X1000/1600 can be equipped with 2 types of work head: with belt or with Torque direct drive. In the belt version, the spindle is universal and has a Morse 5 - ASA 5 cone for fixing any clamping devices. In the Torque version, a micrometric angular control is added for the execution of complex profiles or profiles tracking operations. In both cases, two different heights are possible: 180 and 230 mm. The group is moved along the fixed bench by means of a rack which facilitates the operator in the setup operations.



ALL-IN-ONE TAILSTOCK



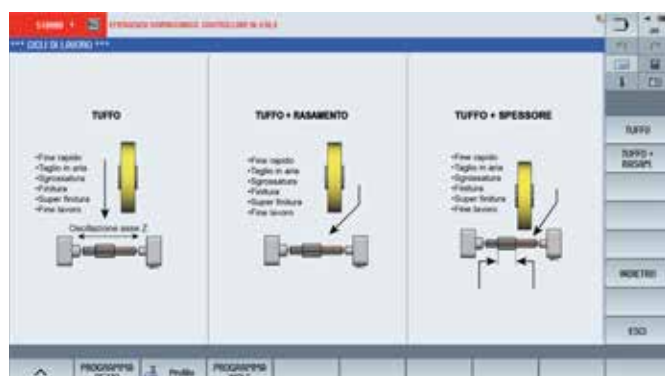
The **X1000/1600** tailstock unit has everything you need: movement manually controlled by lever or automatically by pedal; the centre pressure can be adjusted by spring or hydraulic force. The cylindricity correction of the pieces is made by a practical knob equipped with an optical scale. The movement of the group along the table takes place through a rack that facilitates the operator in the setup operations.

PROCESS CONTROL

The hardware of the CN package can be Fagor or Siemens, and includes motors, drives and peripherals machine management. Digital technology always integrates the free remote diagnosis, so as to allow us to be at your side without making you wait even a minute second. Industry 4.0 has never been so close!



SOFTWARE FOR EVERYONE



We have developed our management software internally, to provide you a simple, complete and reliable user interface.

To use **X1000/1600** you do not need high mechanical skills, our software with touch screen interface simplifies the programming of work cycles.

ACCESSORIES FOR EVERY NEED

MAR collaborates with the most important companies in the sector to be able to provide you with all the customizations that make the difference. In addition to automatic loading systems, integrated measuring devices, piece holding equipment or dressing spindles, it is also possible to rely on **MAR** for process expertise, specific training courses and tailor-made services. On **X1000/1600** there is room for everything.



CUSTOMER CARE

On **X1000/1600**, attention to the customer passes through several points: a design pleasant and simple, great inspectionability of the machine and a simple and clear layout of all the components. In addition to this, we continuously implement the best technologies on the market, with the aim of freeing the customer from operations complex and confusing. Thanks to fieldbuses and diagnostics



on board we can communicate in real time with the customer for identify and correct each usage problem. We also offer a service scheduled maintenance to maintain the quality of your machine over time.

EXTERNAL, INTERNAL AND UNIVERSAL GRINDING MACHINES



MAR srl was born in San Marino in June 2015 from the intuition of 5 friends with the same decades of experience in precision mechanics. In 2017 the idea of designing and producing completely new grinding machines was born: flexible and modular machines, high-performance and accessible to all customers, united by modern technologies such as natural granite bases, linear motors and customized software interface. The standard production range covers grinding needs for external, internal and universal diameters up to 2,000 mm. in length.



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VERTICAL GRINDING MACHINES AND SPECIAL APPLICATIONS



FEF, owned by the Fumagalli brothers, was founded in 1967 and was the first Italian tangential grinding machine company to introduce the CNC as early as 1980. FEF grinding machines have always used the most innovative technologies to adapt to the multiple requests of its customers. The technologies used range from the hydrostatic support system developed entirely by FEF, to linear motors, Torque axes and the use of electrospindles built specifically for individual applications.



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AUTOMOTIVE AND HIGH PRODUCTION GRINDING MACHINES



SAGITECH was born in Alessandria in 2015, providing technological support in the cylindrical grinding machines sector. In 2021 it expands with a new operational form and becomes part of a group of companies all operating in the sector of cylindrical grinding machines and special applications. As part of group synergies, SAGITECH operates mainly in the sector of production cylindrical grinding machines with high-speed tools.



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