GB

PF

SERIE 100

WOOD DIVISION

CMS Worldwide Leader in the Construction of Numerically Controlled Machining Centers for the Woodworking Industry

Since 1969, CMS has built special machines for the woodworking industry. CMS was one of the first companies that applied computerized numerical control systems to woodworking machinery, making greater productivity and flexibility possible.
Over the years, CMS has grown to become a large group comprised of many companies. It has gained international recognition as a leader in manufacturing CNC machining centers, having production and commercial units both in Italy and abroad.
The structural and functional characteristics of CMS machines also make them well suited for machining plastics, composites, light non-ferrous metals, aluminium, marble, and glass.

Innovation and Reliability: A Winning Manufacturing Philosophy

CMS's manufacturing philosophy is based on these simple concepts:

- **A modular designed system**: technology groups designed to be suitable for different types of machines which guarantee that even "custom-tailored" machines have the reliability of widely proven technologies
- **Attention to technological evolution**: technologically advanced and innovative choices using components corresponding to the highest market standards
- **Research to yield performance, corresponding to the client's requirements**: machines designed to provide high productivity, flexibility, and low operating costs; machines built to do complex work, but easy to use and simple to control; machines that are always reliable and safe, complying with international regulations

Over 30 Years of Experience More Than 2,500 Machining Centers Operating All Over the Word

Experience and a strong presence in all the most important international markets attest to the highy professional ability of CMS. CMS Group is all inclusive, incorporating design, engineering, software development and programming, installation, and full support; all of which are independent of outside companies. Therefore, CMS can quickly answer any customer's specific requirement and guarantee the quality of a total solution. This forms the foundation of CMS's success - a success confirmed by thousands of machining centers installed in many different fields as well as the most diverse applications; a success demonstrated by the complete satisfaction of many CMS customers.

Automation and Software: Integrated Systems

CMS machining centers are driven by numerical controls. These controls represent the best brands available on the market and have been specifically studied for diverse applications. A team of skilled engineers develops and installs the machine logic (PLC) on different selected controls in cooperation with the customers' specifications. All numerical controls include the following functions:

- Graphic visualization (also available in color) and tool path process simulation
- A large user's memory
- Spiral interpolation
- A serial interface for external communication, including the software to manage it
- Parametric functions
- Guided menu selection
- Tool radius and length compensation
- Brief description of the tool path for the simple generation of part programs

Processing Software Originated at CMS

CMS has its own internal Software Division that has developed different software packages (CAD CAM), providing real support tools for the generation of CNC programs. The software, combined with coordinate measuring machines (digitizing tables, 2D, and 3D), make programming possible for even the most complex profiles. All software takes the utmost advantage of any capability of the CMS machining center by carrying out unique machining requirements and capitalizing on the customers' technological know-how. Moreover, CMS has created software packages for specific products, such as wooden staircases, kitchen countertops, window and door frames, etc. The Software Division is even able to develop personalized software and post-processors both for CMS machining centers and machinery of other brands.

Personalized Training

CMS, thanks to its technical staff, offers the customers personalized training at any level, from the basic concepts for machine programming and functioning to advanced programming and use of the auxiliary software.
Custom-tailored manuals, available to the customers at no charge, enable the user to work independently.

Skilled and Prompt Customer Service

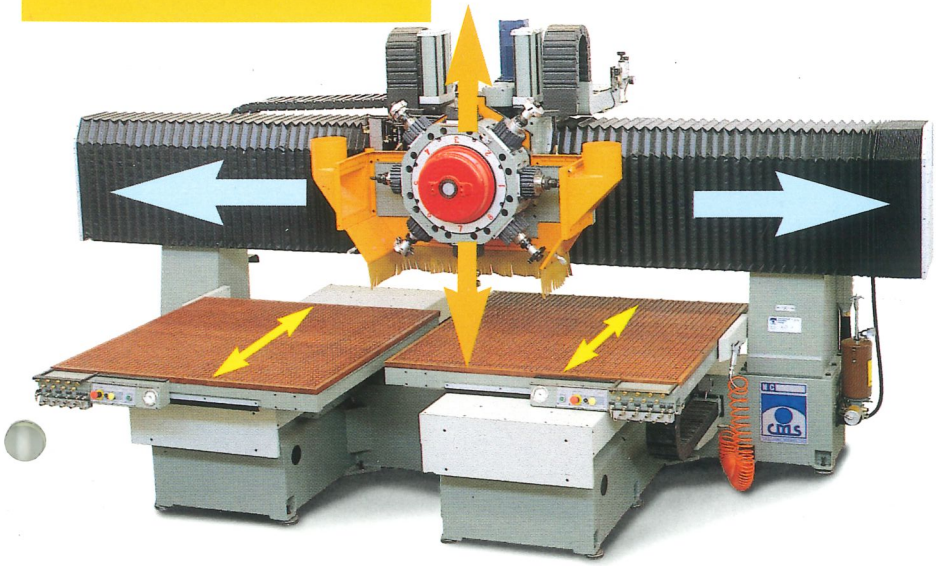
CMS provides free telephone assistance to permit customers to locate and resolve problems immediately.
The technical staff will provide assistance to customers within 48 hours after call.
Modem service is also available to permit the transmission of information from any of our assistance points. The CMS warehouse provides spare parts for all machines on a quick turn around basis.
Programming service is also available to provide custom programs for extremely complex parts and to advise the most suitable use of the machines.

Technological Product Improvement: Quality That Lasts.

CMS's Technical and Automation Departments assist customers in the study and application of new solutions on CMS machines already installed-solutions that permit technological improvement of a machine to meet new requirements.
CMS machines never become obsolete.

PF 100 SERIES

A Standard, High-Quality Product

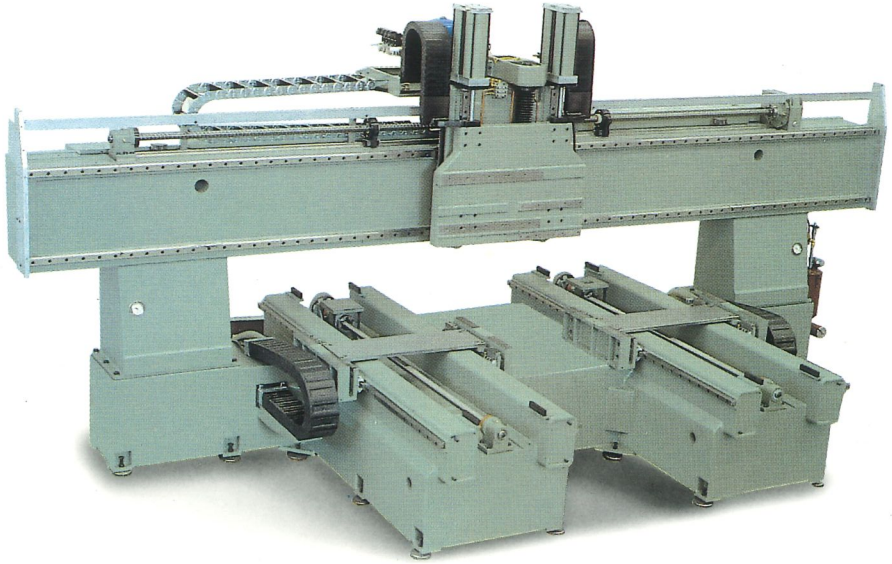


The PF 100 Series was developed to permit CMS to offer its products to a larger number of users.
The PF 100 Series has allowed CMS to transfer its experience in special machine production into a "standard" product of high quality. The result is a flexible and productive machining center with the traditional CMS characteristics (i.e., stability, precision, safety, and reliability which offer the speed and manageability of a router-point-to-point drilling machine). This investment is comparable to the one required for a lower quality, less productive machine.

Steel Structure Absorbs the Highest Vibrations

The rigid and robust machine structure, made of welded and stabilized steel, is able to absorb high vibrations caused from heavy and rapid machining.
The bridge provides X (longitudinal) and Z (vertical) axes movements.
The Y (transversal) movement is carried out by the work table.
The single piece axis slideways are hardened, ground, and mounted on re-circulating ball bearing blocks, which guarantees optimum movement and precision.
The movement is controlled by AC brushless type servomotors, driving pre-loaded precision re-circulating ball screws.
The Z axis movement is supported by pneumatic cylinders and has an automatic braking system.
All machines are equipped with:

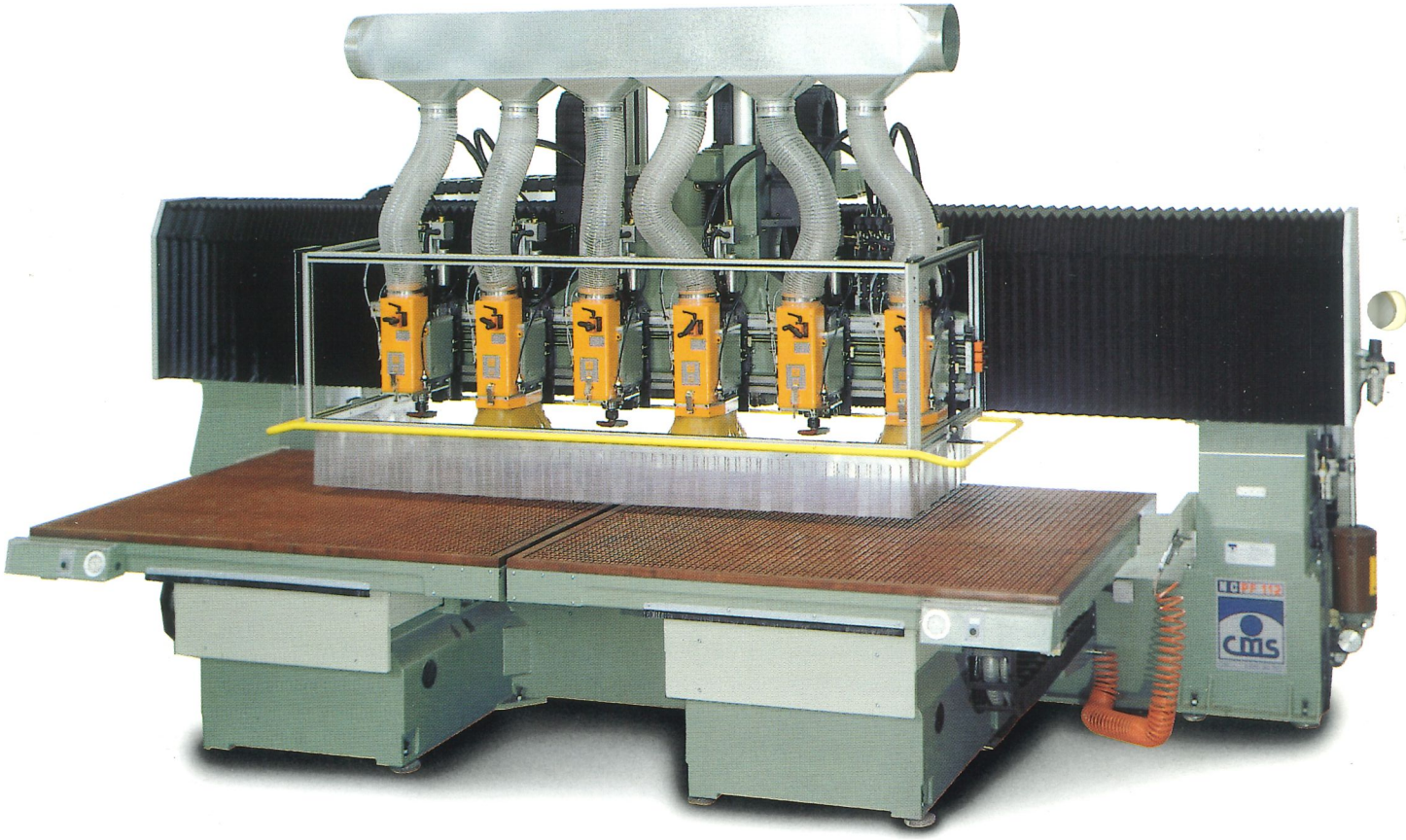
- A digital, static frequency convertor, which allows for continuous adjustment of the machining spindle rpm; complete with a programming system, which has a keyboard for the best use of the spindle power.
- An electronic tool control device that can be programmed for the maximum revolution speed of each tool.
- A centralized lubricating system that automatically greases the sliding components and ball screw.
- Vacuum pumps of high capacity and high depression.
- A dust extraction system, tailored to deliver the best extraction of chips.
- A connection for the compressed air, controllable via CNC, for clamping and other functions.



THE SOLUTION FOR ANY REQUIREMENT

The Models of the PF100 Series Can Be Delivered in the Following Configurations:

- TCU+GF - 2TCU+2GF (tool changing head + drilling unit)
- 2 ATC - 3 ATC - 4 ATC (tool changing heads in a line)
- 4T - 6T (heads in a line)
- 4T + 4M (double heads in a line)
- R8 (revolver with 8 stations)
- R4CU (revolver with 4 stations and tool changing crib)



PF 102 6T

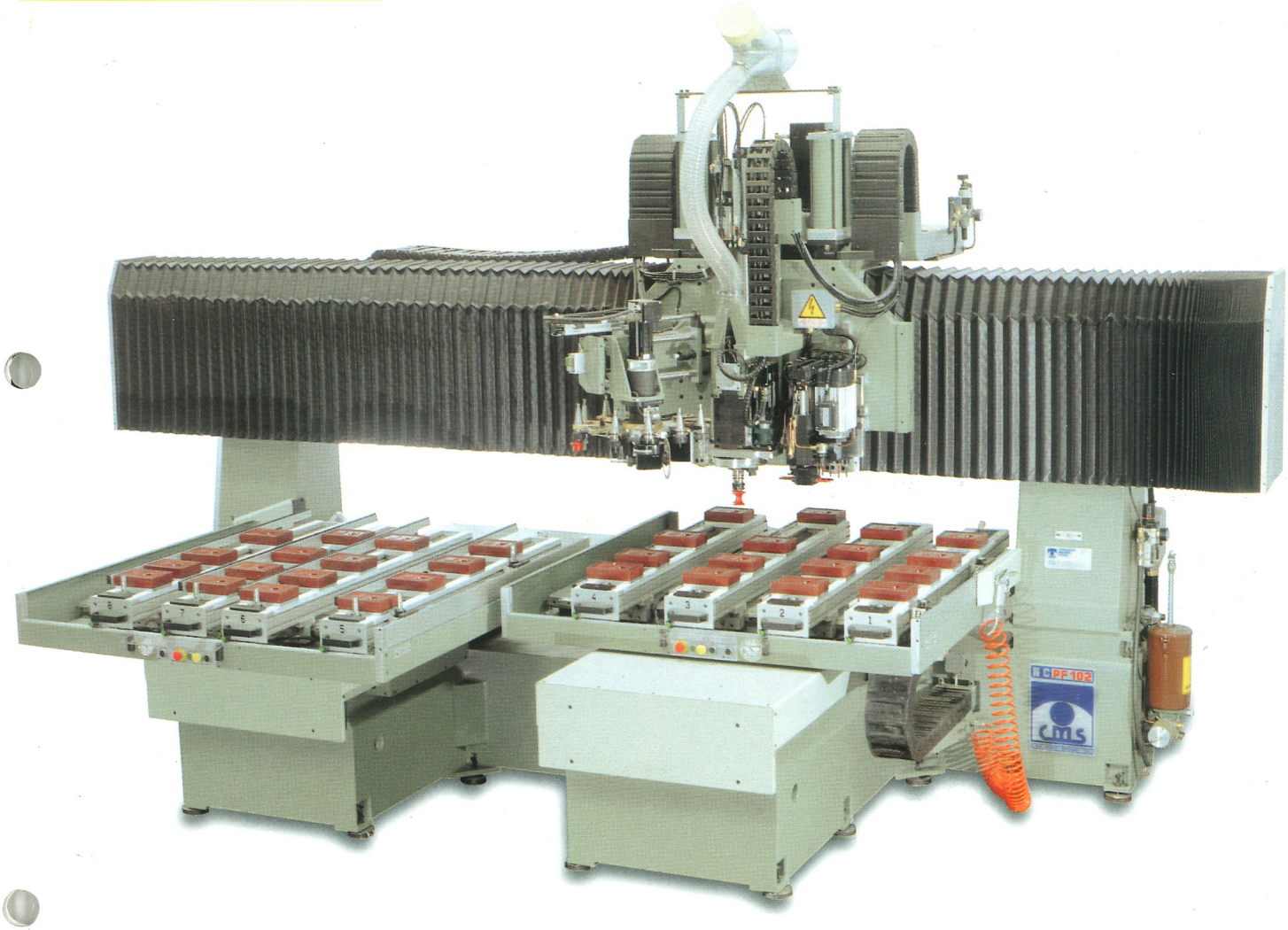
Axes Strokes: x = 3600 mm (141.73 in); y = 1600 mm (62.99 in); z = 250 mm (9.84 in)
Table Sizes: Two at 1500 mm (59.06 in) x 1500 mm (59.06 in) each

"4T" or "6T": Heads Lined Up for the Largest Productivity

Pneumatically-controlled heads with micrometric adjustment of the working position and the ability for floating each head. This configuration allows either the machining of one process operation on many pieces at the same time or several process operations carried out on two or more pieces.

PF 102: CONTINUOUS MACHINING

The PF 102 type CNC machining center has a compact structure and an ergonomic work table to make loading/unloading operations and accessibility of the machine's fixtures easier. The machine is characterized by two work tables, each driven by an independent axis, allowing for pendular work (while a part is being machined on one table, the operator can load and unload the parts on the other).
By synchronizing the two tables, it is possible to machine larger parts.
The machine is versatile, suited for both small and mass production.

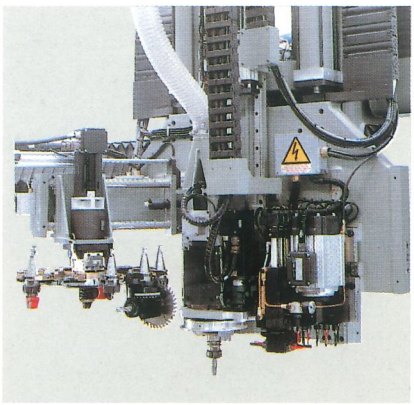


PF 102 TCU

Axes Strokes: x = 3600 mm (141.73 in); y = 1600 mm (62.99 in); z = 250 mm (9.84 in)
Useful for Working Pieces: Two at 1500 mm (59.06 in) x 1500 mm (59.06 in) each

Automatic Tool-Changing Heads

It is possible to automatically change the tool on the router spindle while drilling with the drilling unit, eliminating unproductive time.
The router spindle has a twelve (12)-position toolholder magazine and can be equipped with a fourth axis for controlling the revolution of horizontal transmissions and aggregates throughout 360° in the X and Y planes.
The drilling unit has its spindles arranged in the shape of a "T" with a 32 mm (1.26 in) center distance. Thanks to the individual selection of each drill, drilling vertically and horizontally in multiples or one at a time is permitted.



INTEGRATED SAFETY SYSTEMS

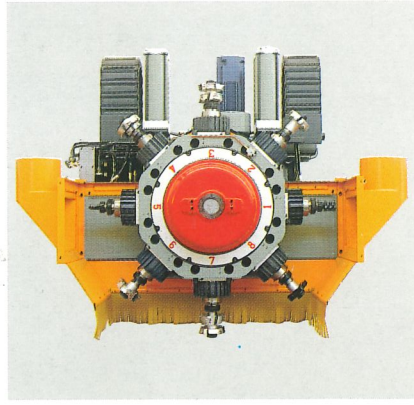
Every machining center is "**designed to be safe**": safety, therefore, becomes part of the product.
The presence of guards, fences, and photocells complete the equipment, guaranteeing safe working conditions for the operator.

PF 102 R8

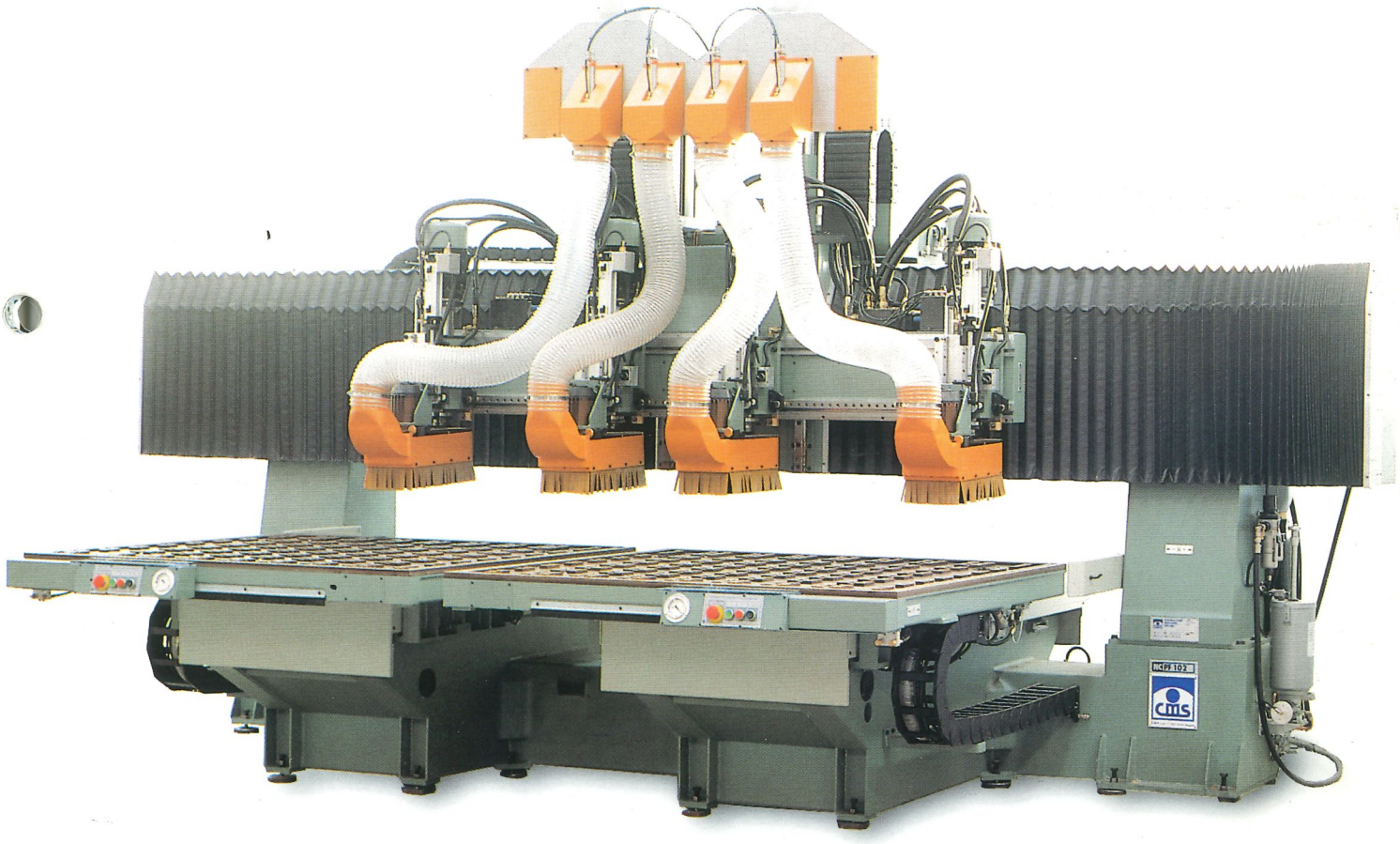
Axes Strokes: x = 3600 mm (141.73 in); y = 1600 mm (62.99 in); z = 250 mm (7.87 in)
Table Sizes: Two at 1500 mm (59.06 in) x 1500 mm (59.06 in) each

Revolver: The Fastest Tool Changer

The revolver is a rotating turret, having eight faces; each of them is equipped with an electrospindle. A revolver is the most rapid, secure, and reliable tool changer available. Each tool or aggregate has its own motor with the most suitable power, torque, and rpm. Moreover, the revolver can have one or more stations with a numerically controlled 4th axis for operating a horizontal unit or vertical copying device.



PRODUCTIVITY AT THE FOREFRONT



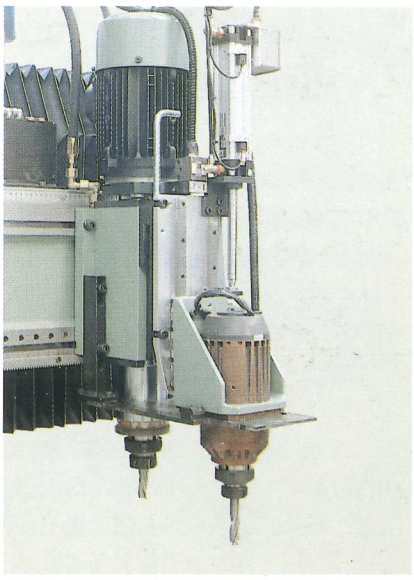
PF 102 4T-4M

Axes Strokes: x = 3600 mm (141.73 in); y = 1600 (62.99 in) mm; z = 250 mm (7.87 in)
Table Sizes: Two at 1500 mm (59.06 in) x 1500 mm (59.06 in) each

Double Heads in a Line (4T+4M)

High Productivity with More Tools

An additional piggyback spindle is mounted on each head in a line. Both spindles are equipped with an independent inserting stroke, allowing for high productivity and a double number of tools available for machining.



2 ATC XZ TRUE MULTI-PROCESSING CAPABILITIES

Due to the fact that the PF 102 CNC machining center has a fixed bridge, mobile tables, and is equipped with two working heads, type ATC XZ (each having an automatic tool changer and two **independent X and Z axes**), it is capable of the following advanced operations:

- **Changing the center distance between the heads, even while a working cycle is in process**
- **Micro-metric adjusting of the Z-offset from the vertical axis**

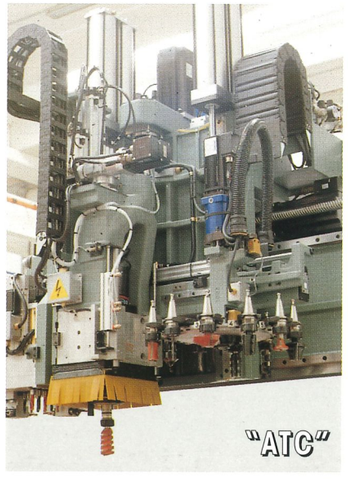
PF 102-2ATC XZ

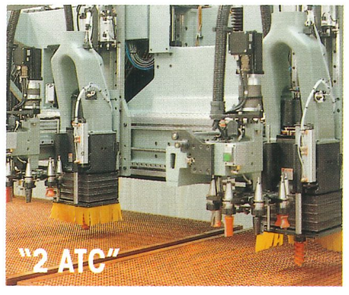
Axes Strokes: X1, X2 = 3.250 mm (127.952 in); Y1, Y2 = 1600 mm (62.99 in); Z1, Z2 = 250 mm (9.84 in)
Table Sizes: Two at 1500 mm (59.06 in) x 1500 mm (59.06 in) each

Center distance between the heads:
min = 450 mm (17.716 in) - max = 3940 mm (155.118 in)

Automatic Tool Changing Heads

A working unit supplied with an electrospindle and an automatic tool changer, complete with a portable toolholder magazine. Horizontal transmissions and aggregates may be mounted on the magazine, whether they are fixed or controlled by a supplemental axis, for continuous rotation throughout 360 degrees in the X Y plane.

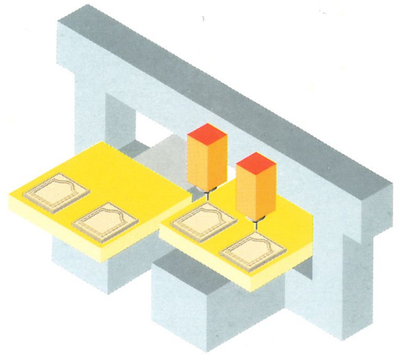

"ATC"


"2 ATC"

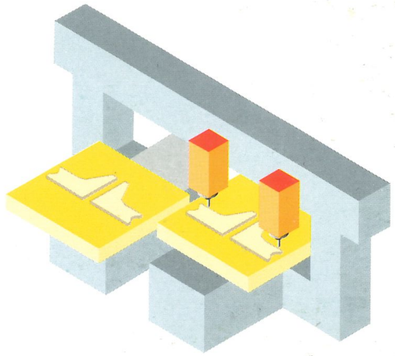

"2 ATC-XZ"

A UNIVERSAL MACHINE

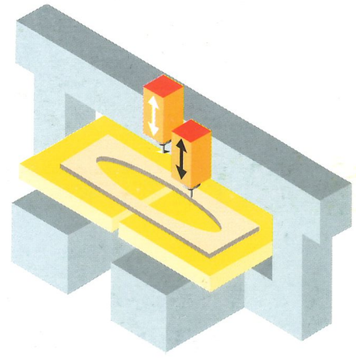
Simultaneous machining of two identical pieces, in pendular and synchronized modes.



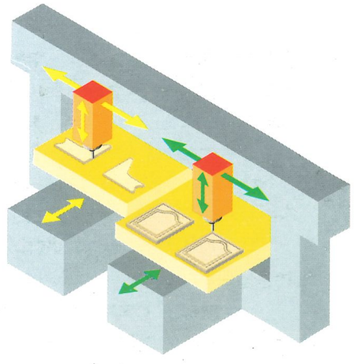
Simultaneous machining of two mirror-positioned pieces in pendular and synchronized modes.



Use of both heads for tool changing while machining parts that require many tools (pendular and synchronized modes).



Simultaneous machining of two different parts on the two tables.



PF 111: A TECHNOLOGICAL TOOL

The PF 111 machining center is characterized by only one work table. Its configuration is particularly suitable for the production of single parts and small batch sizes when machining quality and precision are the most required characteristics.

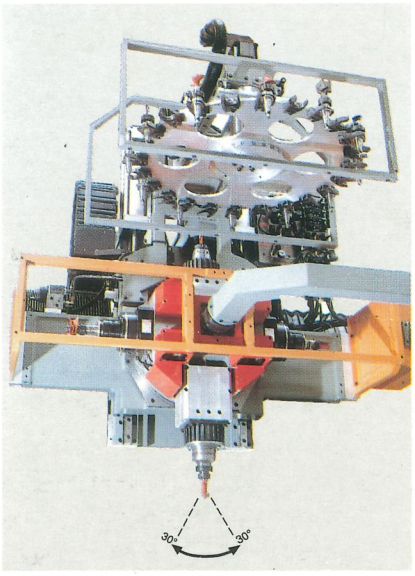
PF 111 R4-CU

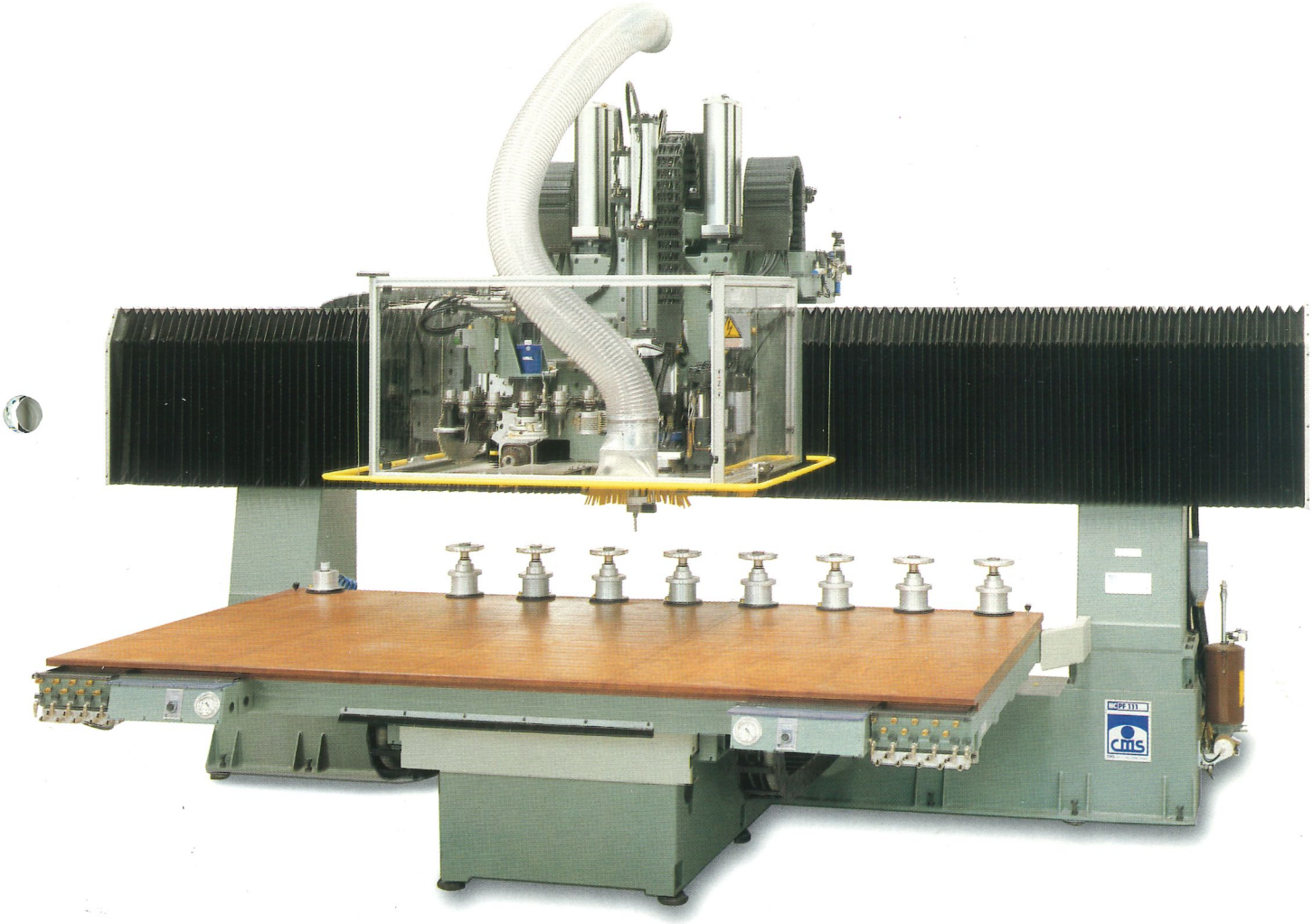
Axes Strokes: x = 3600 mm (141.73 in); y = 1600 mm (62.99 in); z = 400 mm (15.75 in)
Table Sizes: 3050 mm (120.08 in) x 1560 mm (61.42 in)

Revolver, "CU": Even More Possibilities

To increase machining capabilities, the revolver group can be equipped with a tool-holder magazine, having up to 24 places, which is positioned above the revolver itself. In this case, two electrospindles with an automatic tool-changing function are mounted in opposing revolver positions. This permits changing the tool on the top spindle while machining a part with the spindle in the bottom position.

The result is a working unit with an increased number of tools available, reduced unproductive time for tool changing, and the ability to machine with a NC-controlled, horizontal, rotating axis. Moreover, all units (including tool-changing units) can be equipped with a 4th axis for running special aggregates by NC. The revolver's rotation can also be controlled by an axis for machining at tool angles of +/–30°.



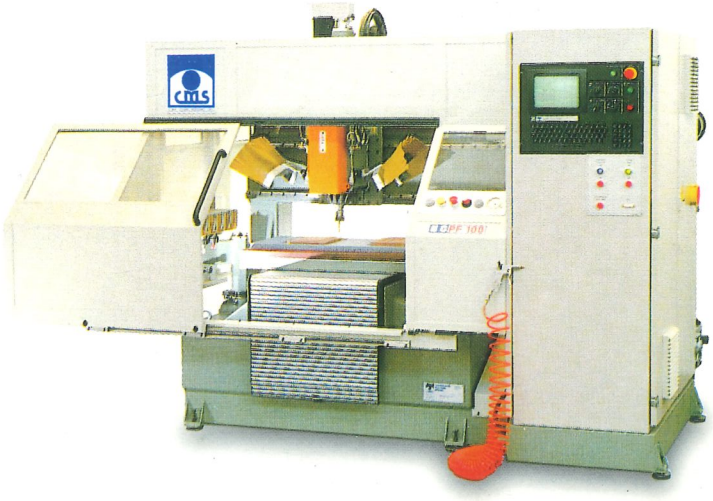


PF 111S-TCU

Axes Strokes: x = 3600 mm (141.73 in); y = 1600 mm (62.99 in); z = 400 mm (15.75 in)
Table Sizes: 3050 mm (120.08 in) x 1560 mm (61.42 in)

PF 100

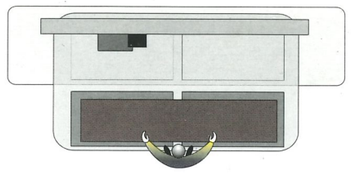
CNC machining center for particularly small sizes, but incorporating all the technical characteristics of the machines belonging to this series. This is the ideal machine for teaching purposes in schools, laboratories, and research centers as it can be used for machining samples and prototypes. It is well-suited for special works and small items. The PF 100 is equipped with one head, an automatic tool changer, and an eight place tool-holder magazine. It is complete with a full protection enclosure.



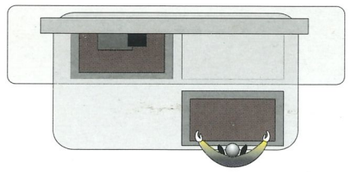
SAFETY AND PRODUCTIVITY

The new technology of CMS (protected by international patents) combines all characteristics of safety, productivity, and precision of the most sophisticated and complete CNC machining centers available on the market today.

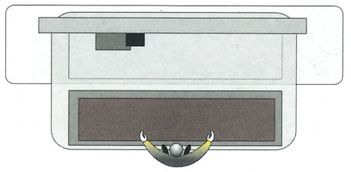
The innovative and compact design reduces overall dimensions to what is essential. The machine may be placed anywhere. Its user-friendliness makes it easy for anyone to operate.



LOADING/UNLOADING OPERATION ON SLAVED TABLES



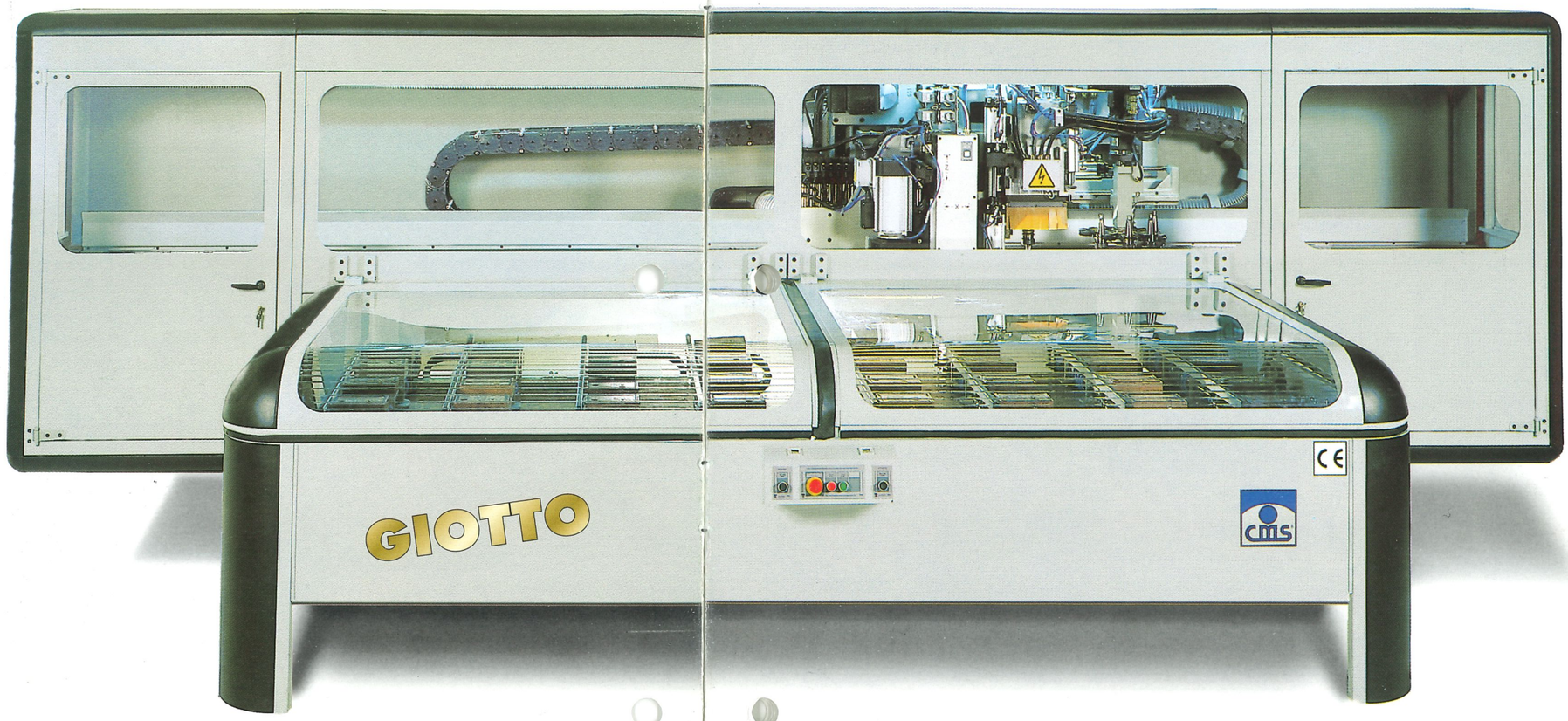
LOADING/UNLOADING OPERATION ON PENDULAR WORKING TABLES



LOADING/UNLOADING OPERATION ON SINGLE TABLE

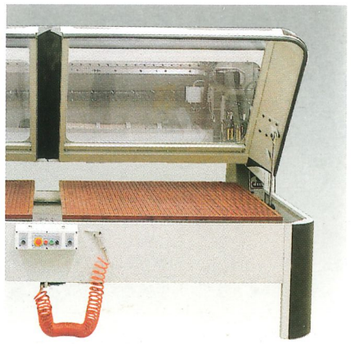
GIOTTO is Available in the Following Versions:

- **SINGLE TABLE**
- **DOUBLE TABLE**
- **VACUUM TABLE**
- **MODULAR TABLE (patented)**



GIOTTO

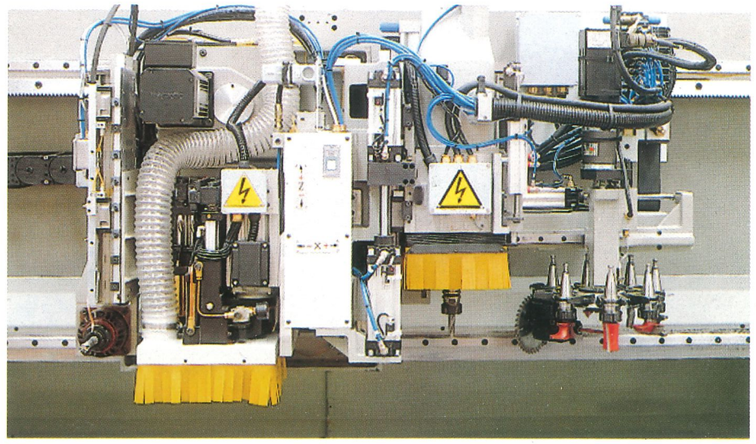
Axes Strokes: x = 3900 mm (153.54 in); y = 1600 mm (62.99 in); z = 200 mm (7.87 in)



Operating Units

Working Unit, "ATC" (PATENTED), + Drilling Unit.
"ATC" head concentrated in one unit.

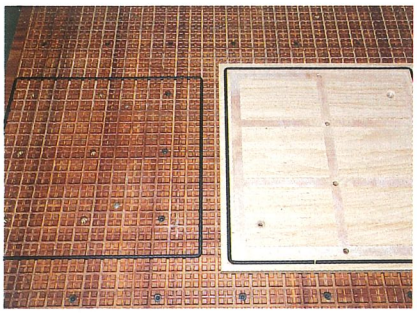
- 8 Kw electrospindle with an 8-place tool crib on-board to change tools rapidly, even while the machine is performing drilling operations
- Floating device for all of the tools in the tool changing magazine
- Index device for positioning angular transmissions from 0 to 90 degrees
- Concentric dust collection at the tool with three dust hood height positions
- 360 degree, programmable, CNC-controlled axis orientation of angular transmissions



DIFFERENT SOLUTIONS FOR SEVERAL REQUIREMENTS

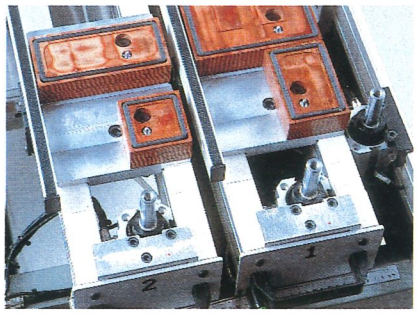
Work Tables

The work table can be equipped with different clamping systems:



• A vacuum lignostone table with a gasket-holding grid, which allows the creation of vacuum zones

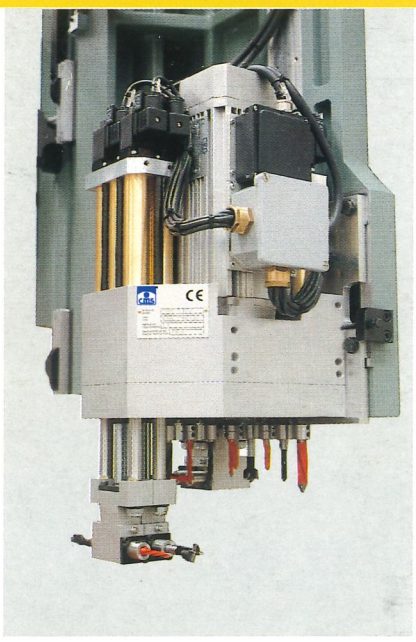
• A flat table with modular subpieces and reference stops, connected to the machine vacuum and compressed air plants

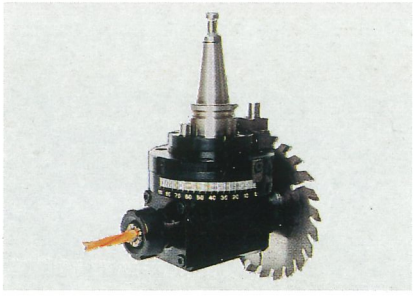


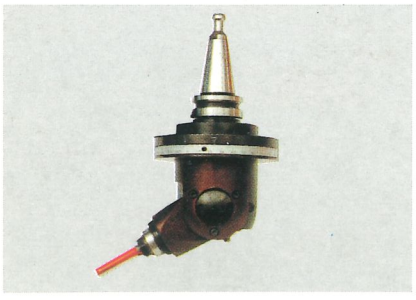
• Mobile vacuum cups mounted on prismatic guides, having a special pneumatic clamping system which gives high rigidity

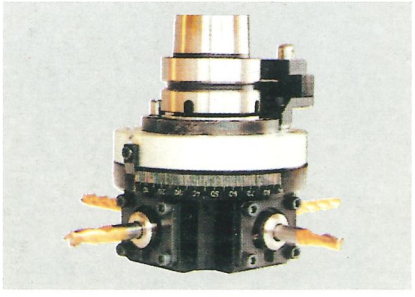
Aggregates

A number of different aggregates are available that broaden the work capabilities of CMS machining centers. The characteristics and number of these aggregates are continually expanding: all new developments are passed on to our customers.



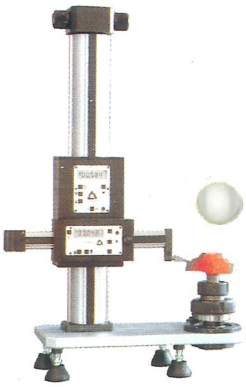


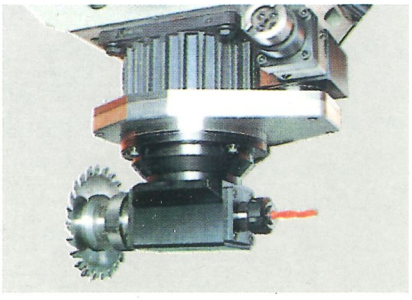




Presetting

With a digital electronic **"presetting"** device, it is possible to measure the tool radius and length to a precision of one hundredth of a mm (or one thousandth of an inch).





ACCURACY AND FLEXIBILITY

CNC Machining Centres

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