

# yposos / vertec mill

vertical machining centers



CMS is part of SCM Group, a technological world leader in processing a wide range of materials: wood, plastic, glass, stone, metal and composites. The Group companies, operating throughout the world, are reliable partners of leading manufacturing industries in various market sectors, including the furniture, construction, automotive, aerospace, ship-building and plastic processing industries. SCM Group coordinates, supports and develops a system of industrial excellence in 3 large highly specialized production centers employing more than 4,000 workers and operating in all 5 continents. SCM Group: the most advanced skills and know-how in the fields of industrial machinery and components.

CMS SpA manufactures machinery and systems for the machining of composite materials, carbon fibre, aluminium, light alloys, plastic, glass, stone and metals. It was established in 1969 by Mr Pietro Aceti with the aim of offering customized and state-of-the-art solutions, based on the in-depth understanding of the customer's production needs. Significant technological innovations, originating from substantial investments in research and development and take-overs of premium companies, have enabled constant growth in the various sectors of reference.

# ypsos / vertec mill



**CMS Glass Technology** is a leader in the field of curved and flat glass working with technologically advanced solutions such as numerically controlled machining centres, cutting benches and water-jet cutting systems. Thanks to the tradition and experience of the historic brands Brembana and Tecnocut, today **CMS Glass Technology** is an absolute protagonist in this sector for the manufacturing of innovative solutions dedicated to architecture and interior decoration.

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# APPLICATIONS



mirrors | photovoltaic | doors | ovens and hob tops



shower doors enclosures | ventilated façades and windows | stairs | tables

**T**echnological.  
**O**riginal.  
**P**erforming solutions.

**TOP** machines for glass processing.

Vertical machining centers

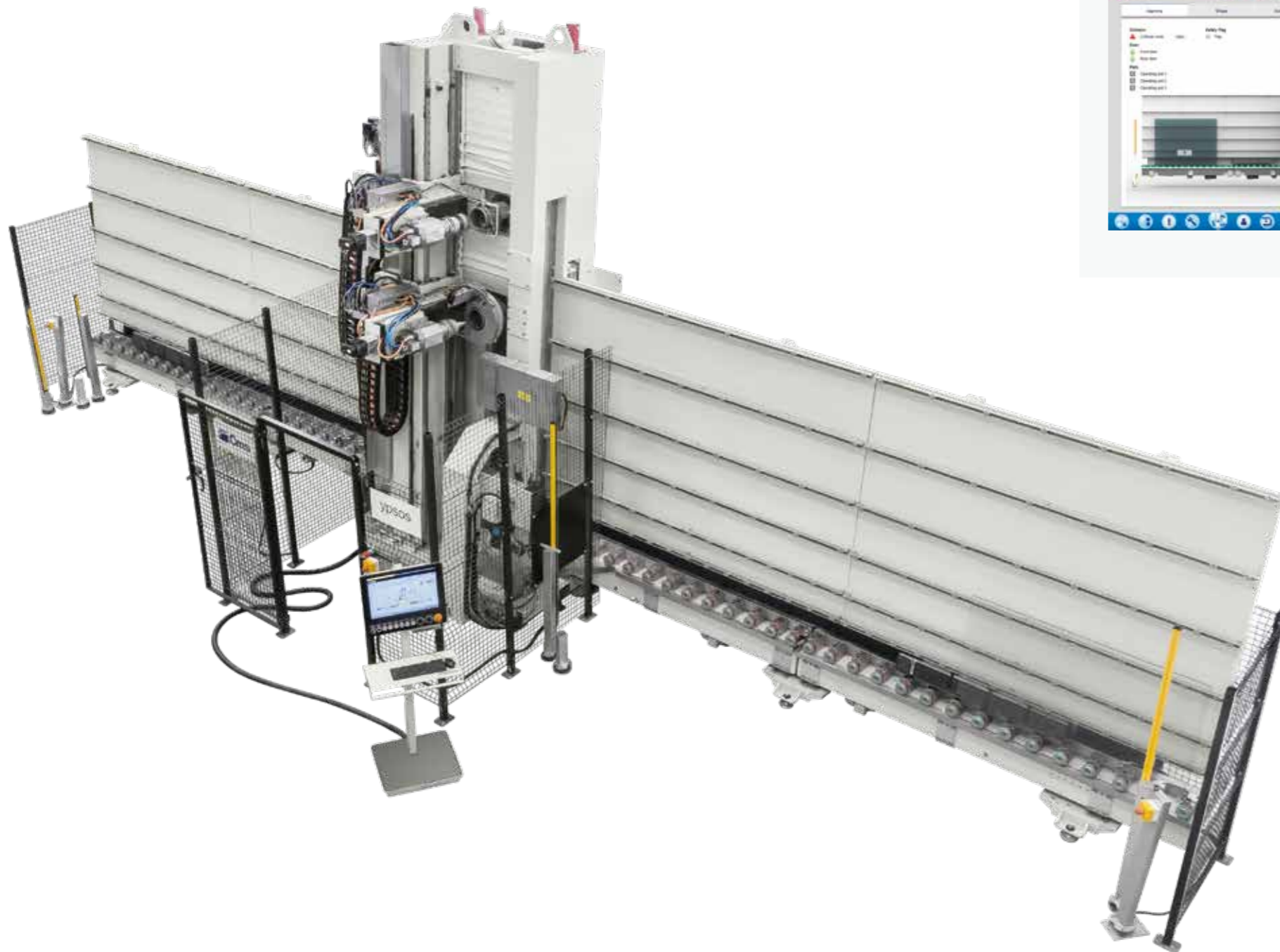
# YPSOS

## TECHNOLOGICAL BENEFITS

### WHAT IS THE BEST CMS VERTICAL MACHINING CENTER?

Ypsos is the best vertical machining center developed by CMS, ideal for processing **flat and laminated glass sheets**, and designed from over 50 years of experience in the field of machine tools. The goal: to **reach the best reliability ever in the vertical CNC category**. The new software has been designed to make the user interface more efficient and intuitive than ever. Based on the configuration selected, Ypsos can carry out arising, polished and industrial **grinding, milling and coaxial drilling operations**. This machine provides absolute accuracy and quality, accompanied by the classic benefits in terms of productivity and versatility given by the vertical processing. Available in 3 standard sizes, **it allows the processing of small and large-sized sheets up to 6,000 x 3,300mm max.** (additional maximum processable sizes available upon request).

Ypsos can be used as a **stand-alone machine, in line with a drilling-milling machine or inside a double-glazing line.**



## SOFTWARE AND USER INTERFACE USING A CNC HAS NEVER BEEN SO STRAIGHT FORWARD!

**THE NEW SOFTWARE HAS BEEN DESIGNED TO MAXIMIZE THE NUMERICAL CONTROL AND USER INTERFACE EFFICIENCY.**



### EVERYTHING UNDER CONTROL

CMS experts have created a SCADA (Supervisory Control And Data Acquisition) software that allows to monitor and supervise all the main components of the machine thanks to specific overviews.

### PEACE OF MIND FOR DESIGNERS AND OPERATORS

The operator designing the workpiece just needs to select the necessary processing operations, and YPSOS will take care of finding the right tool (if installed on the machine). Otherwise, Ypsos will inform the user that the tool has not been loaded or does not have enough useful life.

### KEY BUYER BENEFITS

- + **33s** → arising cycle time for a 2,000mm x 1,000mm workpiece with two spindles. **[PRODUCTIVITY]**
- + **-15%** → time saved to grind a sheet with polished edges, using two spindles instead of one. **[PRODUCTIVITY]**
- + **-53%** → time needed to identify a potential collision issue, thanks to the new interface. **[EFFICIENCY]**
- + **300.000 stress-test cycles** for the glass clamping system, to ensure a heavy-duty product. **[RELIABILITY]**

# YPSOS

## ACCESSORIES

### HOW TO GET THE MOST OUT OF A POLISHED GRINDING?

Ypsos can be equipped with a **second spindle**, able to perform arising and coarse or polished edge grinding operations. The second head allows the automatic tool change in the presence of at least one rotary magazine.



### A TOOL FOR EVERY OPERATION

Up to two **rotary magazines** can be installed to house the ISO40 tool-holding cones. Each magazine features 13 positions, and each cone can house up to 50mm of tool thickness. Additionally, multi-profile tools are allowed, such as milling machines and combined profiles.

### THE WORKPIECE IS CLAMPED WITH EXCEPTIONAL STABILITY

Ypsos offers an excellent clamping stability, optimized also for larger workpieces. This is possible because the guide beam on which the axes of the suction cup carriages slide has been completely redesigned: the suction cup carriage's stroke covers the entire length of the machine, allowing to grab even larger workpieces in the areas closest to the external edges. More so, the guides and racks are completely protected from water, due to heat-sealed technopolymer bellows.



### CONES

#### Main and Secondary Spindle

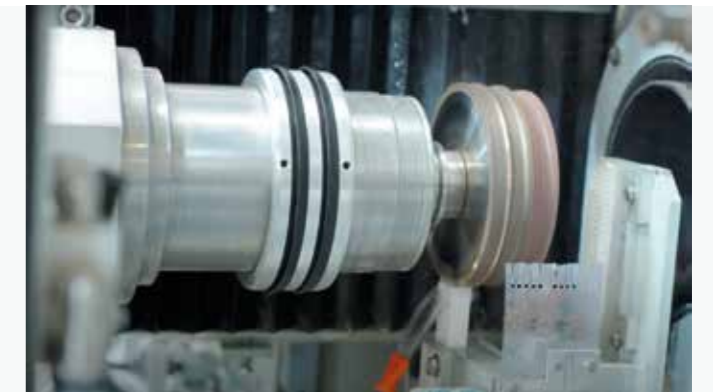
- ISO40 cones with 1/2" gas connection for milling machines and core bits
- ISO40 cones for peripheral grinding wheels (diameter 150mm)

#### Rear driller

ISO20 tool-holding cones with magnetic connection and dragging through pins

### FOCUS ON WHAT'S ESSENTIAL - YPSOS WILL DO THE REST!

Ypsos can be equipped with a **fully automated grinding wheel and core bit truing system**. The machine software makes it possible to set after how many processed material meters/holes the grinding wheels and core bits must undergo truing. Ypsos continuously monitors the tool wear state, and automatically chooses the right moment to start the truing process.



### LASER TOOL PRESETTING

To prevent the tool wear state causing changes to the processing quality, it is possible to equip the machine with an automatic tool presetter, which allows to automatically update and save the tool dimensions in the machine software. The choice of a laser presetter allows you to overcome any limitation in the tool profile reading, and to dynamically read the tool diameter.

### NEW SUCTION CUP CARRIAGE

CMS designers have optimized the layout and size of the suction cups, to allow an exceptional holding modularity: from smaller workpieces (420mm x 270mm) to the bigger ones (maximum dimensions according to the size chosen). The movements of each suction cup are smooth and have high rigidity based on pre-charged crossed roller guides. Protection from water and glass scraps is ensured due to the use of technopolymer bellows and aluminum alloy cover slides.



# YPSOS

## ACCESSORIES



### READING SYSTEM OF GLASS DIMENSIONS AND OUT-OF-SQUARE MEASUREMENT

Ypsos can be equipped with an **automatic reading system for the three glass sheet dimensions** (length, height, thickness) and for out-of-square measurement. The system automatically detects any error affecting the straightness of the rectangular and square sheets' sides (up to a maximum of +/- 5mm), adjusting the processing operations accordingly. Additionally, the measurement system has been redesigned, equipped with an accurate and reliable rack transmission and placed away from processing water.



### REAR MAGAZINE

The machine can be equipped with up to three rear tool-holding magazines for the driller, each of them with a maximum capacity of six ISO20 cones, for a total of 18 cones

**WHY DRILLING HOLES IS NOT A PROBLEM ANYMORE?**  
 The **rear driller** is dedicated to the drilling of glass and can reach any area of the sheet without limits. In fact, the patented CMS system allows to drill holes in front of the suction cup carriage, due to a CMS patented system.  
 The driller allows the use of core bits up to 50mm in diameter; it is equipped with a cooling system directly embedded in the sheet counter presser.



### SUCTION CUP WASH AND SHEET PRE-WASH

The machine is always equipped with a washing system for the suction cup groups. At each cycle start, work carriages move in front of nozzles spraying high-pressure water on the suction cups surface. This allows an accurate cleaning to prevent the presence of scratches on the glass when the sheet is clamped. Additionally, it is possible to equip the machine with a pre-wash system, which cleans the sheet from processing residues to ensure a longer duration of the brushes. Pre-wash is recommended especially for those machines intended for low-e glass processing.



# VERTEC MILL

## TECHNOLOGICAL BENEFITS

### CNC VERTICAL DRILLING MACHINE

CNC vertical machine for drilling, countersinking, milling and notching operations on monolithic, laminated and Low-E glass.

- possibility to work both rectangular and shaped glass sheets (one rectilinear side required)
- two coaxial opposed electrospindles and tool cooling system with internal and external water, which enables a higher finishing and machining quality
- two 9+9 stations NC-controlled rotating tool crib installed on a carriage fixed to the electrospindle, ensure tool change operations in the shortest time
- high-pressure water cushion (patented)



The machine is equipped with two opposing pressers that are meant to stabilize the workpiece during machining.

The function of the pressers during drilling is to clamp the glass sheet and, at the same time, bring coolant to the outside of the tool. During the milling and profiling operations, the pressers are separated from the glass sheet by a few tenths and, due to the patented water cushion system, they ensure the absence of vibrations, perfect tool cooling, and uniformity of the chamfer size along the entire glass sheet.

### KEY BUYER BENEFITS

- + **Minimum tool change times:** The machine has two 9 + 9 position tool magazines fixed integrally with the vertical carriage. In this way, the tool change operation takes just 10" regardless of the processing area.
- + **Tools always at the best performance:** to ensure maximum machining precision, the machine has an automatic measurement system for core drill bits with a centesimal precision. It is also possible to revive the core bits completely automatically. This system allows having in total safety tools that always work at maximum performance.
- + **Anti scratch system:** during the milling and profiling operations, the pressers remain separated from the glass 0.2 mm and thanks to the patented water cushion system they ensure the absence of vibrations, perfect cooling of the tool and uniformity of the size of the chamfers along the entire sheet.
- + **Unmatched positioning accuracy:** the stop guarantees positioning with an accuracy of fewer than 3 tenths of a millimeter thanks to the transmission with pinion and rack. The sheet zeroing takes place without stapling the surface, in this way it is possible to process low-E glasses.



# VERTEC MILL

## ACCESSORIES

The two completely independent suction cup carriages, with three suction cups with separate channels, ensure the perfect movement of the glass sheet during milling operations.



The machine is equipped with two 9+9 station tool magazines fitted integrally with the vertical carriage. In this way, regardless of the position of execution of the work, the tool change operations will always be fast. The optimization of the program provides for the changing of the tool on one operating unit while the other is machining.

Electrospindle 5 HP 0÷12000 rpm



To ensure maximum machining precision, the machine is equipped with an automatic coredrill measurement system. This relieves the operator of the task of checking the tool wear. It is also possible to dress the coredrills in a fully automatic way by following a preset frequency. This fully automatic system enables having tools that always work at maximum performance in total safety.



It is possible to use tools with 1/2" gas connection with a length of 75 or 95 mm. Combined milling cutters, tapered countersinks and grinding wheels for polishing milling operations.





# PRODUCTION LINE

CMS Glass Technology vertical machining centers can be installed as stand-alone machines (ensuring maximum machining flexibility), in line (for maximum productivity) or inside a double-glazing line. They can be completed with glass loading/unloading systems, Kart or anthropomorphic robots, automatic paper-spreaders for the separation of single glass sheets and single or rotating palletization system. Due to the different solutions available, a CMS vertical machining center is the winning solution for all modern glass workshops, from small-sized ones (typically family-run) to large-sized ones (industrially managed for high production volumes).



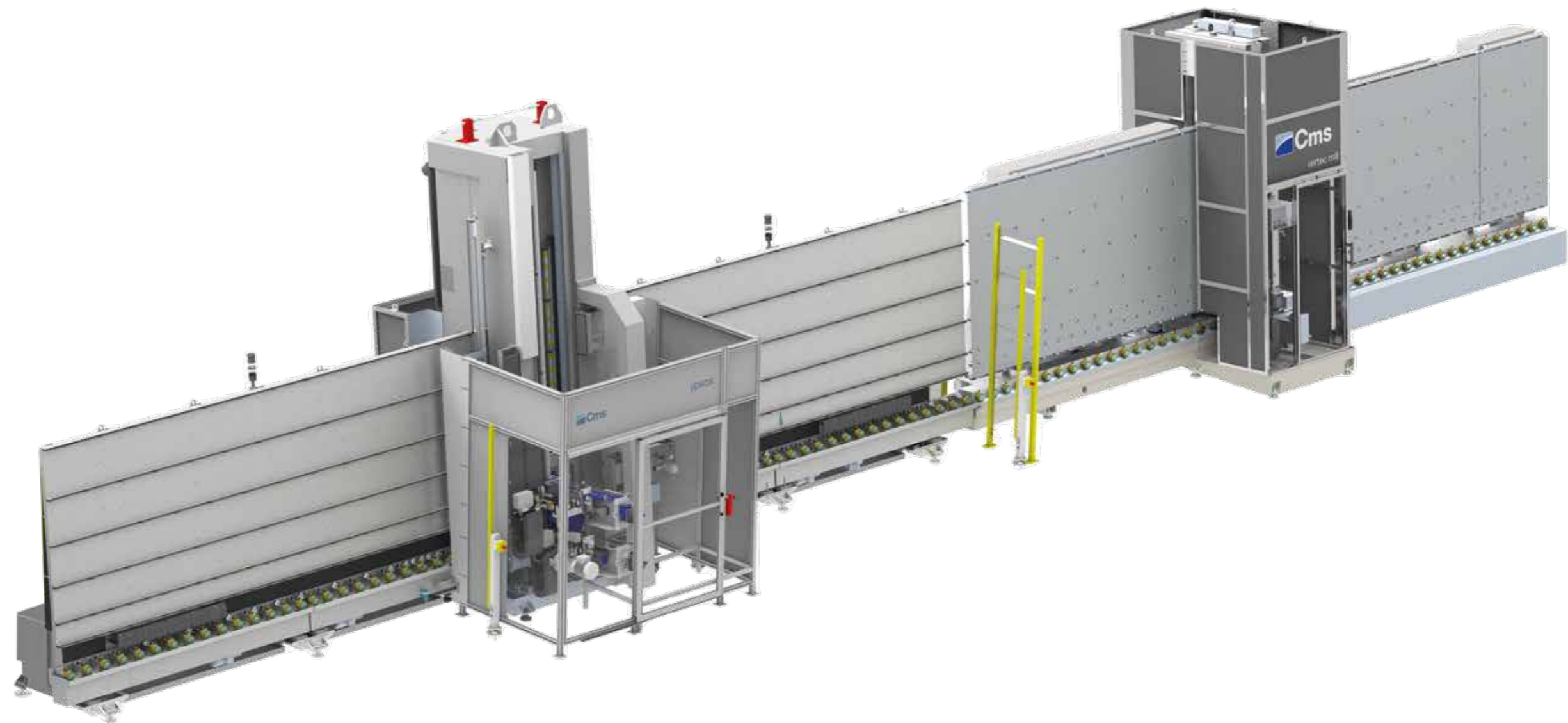
Automatic glass sheet loading system



Automatic paper-spreader systems



Anthropomorphic robots



# YPSOS / VERTEC MILL SOFTWARE

## EASYGLASS

Easyglass is the CAD/CAM software developed on CMS Glass Technology machining center and specifically designed for the generation of glass machining programs; it runs under Windows environment.

Available at different levels, it offers the following functions:

### CAD FUNCTIONS:

- Free drawing of geometric entities
- Drawing from preset parametric models (libraries)
- Import and export of figures from and for other CAD/CAM systems with the standard current formats (DXF, IGES, ISO, CAL CSF, BYF etc.)

### CAM FUNCTIONS

- Automatic generation of paths with interactive graphic editing
- Generation of roughing, drilling, finishing, profiling, polishing, etc. cycles
- Automatic cycle generation of engraving with milling tool, notches, countersinking, etc.
- Management of multiple interpolated axes
- Computation of machining times

### ARRANGEMENT:

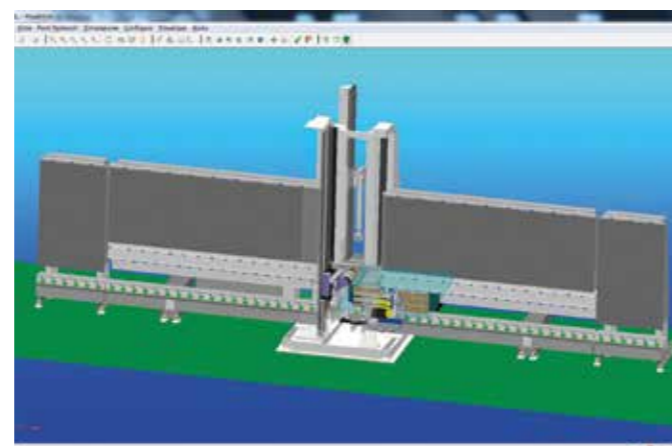
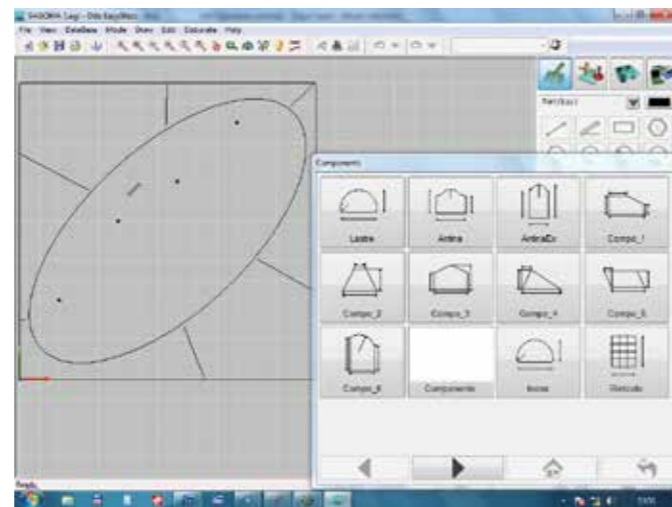
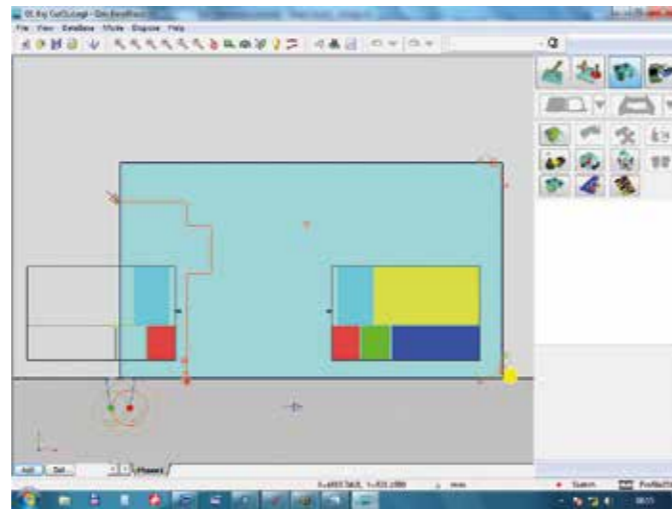
- Graphic interactive positioning of suction cups
- Automatic check of interferences

### POSTPROCESSOR:

- Transfer of machining programs to the machining center via: USB key, serial line, network

### SIMULATION:

- 3D graphic simulator of machining process



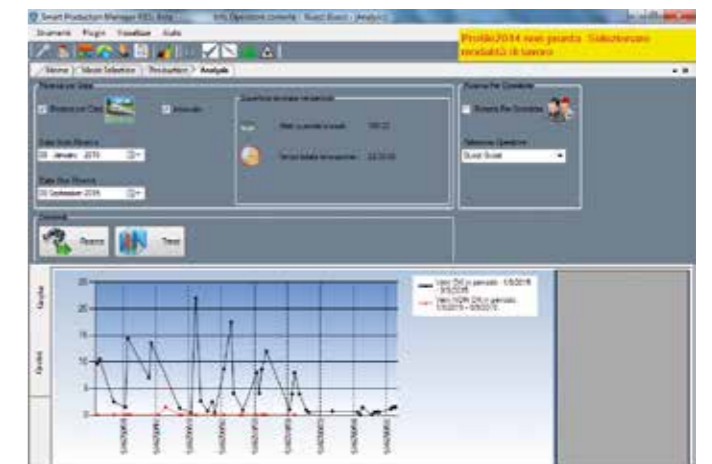
## ONLINE CUSTOMER SUPPORT

By using the remote and web-assistance platforms and the SLM (Service Lifecycle Management) system, CMS will assist you online, reducing the times requested from the first diagnosis to the intervention.



## SPM (SMART PRODUCTION MANAGER) SOFTWARE

The SPM (Smart Production Manager) software is an automatic production controller, capable of planning, organizing and managing the glass processing on vertical machines. SPM enables monitoring the whole production process and database recording each machining operation, complete with information like data and production time, machining center operator's ID, cycle time, dimensions, (completed/interrupted) machining results, operating machining center's ID and name of DXF or NC file in use. The software is available in various configurations, which enables managing the machining center automatically (with the aid of bar codes or production lists), semi-automatically (the operator selects the DXF file or NC manually) or manually (the programs are generated and transmitted manually to the machining center for a quickly carry out).

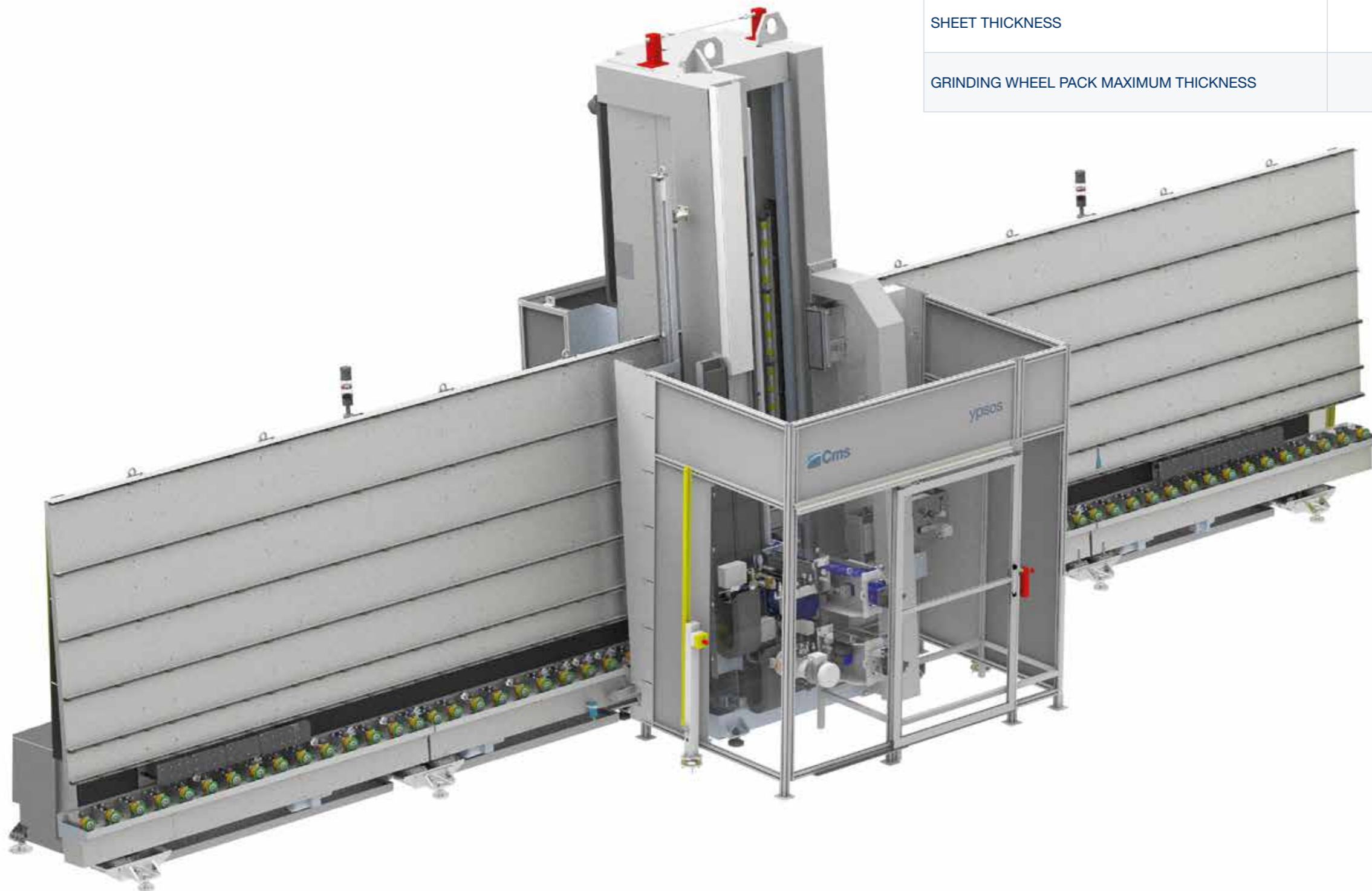


# YPSOS

## TECHNICAL DATA

### YPSOS: TECHNICAL DATA

|                                       |   |
|---------------------------------------|---|
| SHEET MAXIMUM LENGTH                  | 3200 - 4500 - 6000 mm /<br>126 - 177 - 236 in |
| SHEET MAXIMUM HEIGHT                  | 2200 - 2800 - 3300 mm /<br>86 - 110 - 130 in  |
| SHEET MINIMUM LENGTH                  | 420 mm / 16,5 in                              |
| SHEET MINIMUM HEIGHT                  | 270 mm / 10,6 in                              |
| SHEET THICKNESS                       | 3÷30 mm / 1/8÷5/4 in                          |
| GRINDING WHEEL PACK MAXIMUM THICKNESS | 50 mm / 2 in                                  |



# VERTEC MILL

## TECHNICAL DATA



### VERTEC MILL: TECHNICAL DATA

|                            |  |
|----------------------------|--|
| MAXIMUM WORKABLE LENGHT    | 3200 - 4500 - 6000 - 7500 mm<br>/ 126 - 177 - 236 - 295 in |
| MAXIMUM WORKABLE HEIGHT    | 1600 - 2220 - 2600 - 3300 mm<br>/ 63 - 86 - 102 - 130 in   |
| MINIMUM WORKABLE DIMENSION | 420x180 mm<br>/ 16x7 in                                    |
| GLASS WORKABLE THICKNESS   | 3 ÷ 30 mm<br>/ 1/8 ÷ 5/4 in                                |
| DRILLING BITS DIAMETER     | 3 ÷ 70 mm<br>/ 1/8 ÷ 2,5 in                                |
| ELECTROSPINDLE             |  |
| POWER                      | 3,7 KW / 5 HP (S1)<br>4,4 KW / 5,8 HP (S6)                 |

# CMS connect the IoT platform perfectly integrated with the latest-generation CMS machines

CMS Connect is able to offer customised micro services through the use of IoT Apps that support the daily activities of industry operators - improving the availability and use of machines or systems. The platform displays, analyses and monitors all data from connected machines. The data collected by the machines in real time become useful information **increase machine productivity, reduce operating and maintenance costs and cut energy costs.**



# CMS active a revolutionary interaction with your cms machine

Cms active is our new interface. The same operator can easily control different machines as the “CMS Active interfaces maintain the same look&feel, icons and iteration approach.



## APPLICATIONS

**SMART MACHINE:** Section designed for the continuous monitoring of machine operation, with information on:

**Status:** machine status overviews. The representations provided allow machine availability to be checked - to identify possible bottlenecks in the production flow.

**Monitoring:** instantaneous, live display of the operation of the machine and its components, of currently running programs and potentiometers;

**Production:** list of machine programs run within a given timeframe with best time and average running time;

**Alarms:** active and historical warnings.

### SMART MAINTENANCE

This section provides a first approach to predictive maintenance by sending notifications when machine components indicate a potentially critical state associated with reaching a certain threshold. In this way, it is possible to take action and schedule maintenance services, without any down-time.

### SMART MANAGEMENT

Section designed for KPI presentation for all the machines connected to the platform.

The indicators provided assess of the availability, productivity and

efficiency of the machine and the quality of the product.

### MAXIMISED SECURITY

CMS Connect uses the standard OPC-UA communication protocol, which guarantees the encryption of data at Edge interface level. CMS Connect's Cloud and DataLake levels meet all state-of-the-art cyber-security requirements. Customer data are encrypted and authenticated to ensure total protection of sensitive information.

## ADVANTAGES

- ✓ Optimisation of production performance
- ✓ Diagnostics to support components warranty optimisation
- ✓ Productivity increase and downtime reduction
- ✓ Improvement of quality control
- ✓ Maintenance costs down

### EASY OF USE

The new interface has been especially developed and optimized to be immediately used via touch screen. Graphics and icons have been redesigned for user-friendly and comfortable navigation.

### ADVANCED ORGANIZATION OF PRODUCTION

Cms Active enables configuring different users with different roles and responsibilities according to the operation mode of the machining centre (e.g.: operator, maintenance man, administrator, ...).

It is also possible to define the work shifts on the machining centre and then survey activities, productivity and events that have occurred in each shift.

### ABSOLUTE QUALITY OF THE FINISHED WORKPIECE

With CMS aActive the quality of the finished workpiece is no longer jeopardized by worn-out tools. The new Tool Life Determination system of CMS Active sends warning messages when the tool life is running out and recommends its replacement at the most appropriate time.

### TOOL SET-UP? NO PROBLEM!

CMS Active guides the operator during the tool magazine set-up phase, also allowing for the programs to be run.

# THE RANGE OF CMS GLASS TECHNOLOGY

# FOR GLASS PROCESSING

## HORIZONTAL MACHINING CENTERS



**SPEED**



**GEA**

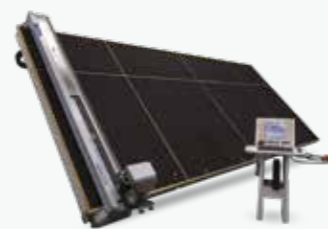


**MAXIMA**

## CUTTING TABLES AND CUTTING LINE



**AGIL**



**RUNNER**

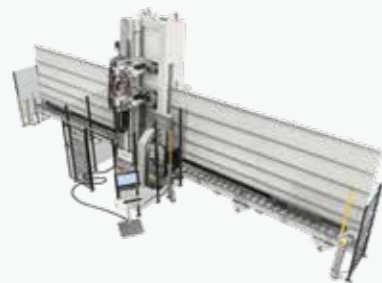


**RUNNER LINE**

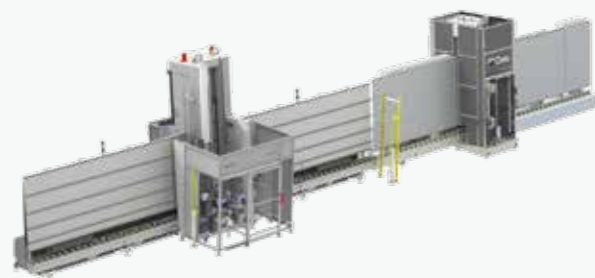
## VERTICAL MACHINING CENTERS



**VERTEC MILL**



**YPSOS**



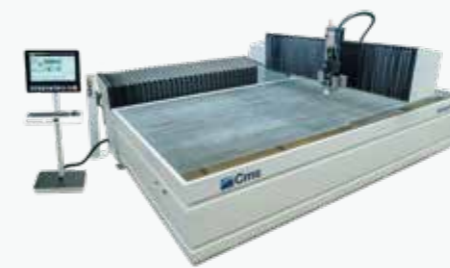
**YPSOS + VERTEC MILL**

## LOADING SYSTEMS



**KART**

## WATERJET CUTTING SYSTEMS AND PRESSURE INTENSIFIERS



**EASYLINE**



**SMARTLINE**



**MILESTONE S**



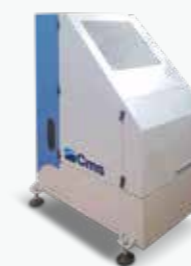
**IDROLINE S**



**PROLINE**



**AQUATEC**



**EASYPUMP**



**JET POWER EVO**



**GREENJET EVO**



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