THEMA®

A Family Factory

THEMA TECH

“We have learned that the higher you go, the further you see, and the more you can dream.”

Cadore is one of the most beautiful and enchanting places in Italy. The Dolomites, the Tre Cime di Lavaredo, the Misurina lake; Countries rich in history and legends, culture and traditions. Unspoiled nature, with streams, forests and wonderful mountains. It is in this setting that our story begins, in the Domegge di Cadore headquarters where our eyewear models have always been born.

From generation to generation, we imagine, create and make products that are the result of continuous research into details for new ideas and trends, inspiring us to a world in constant dynamic evolution where we can not afford to make mistakes.

From Cadore, with pride, thanks to constant research to always offer quality and innovation. We distinguish ourselves in the production of custom-made glasses, suitable and customized for every age and above all, for every shape of the face. Thanks to our exclusive V.E.A. (Virtual Eyewear Assistant) and the innovative 5-axis milling machine.

THE INTELLIGENT ALTERNATIVE TO BIG MACHINES

Thema Tech is the result of a new market trend, and of the need to renew production methods through a new generation of machines for opticians.
In a market characterised by ever-increasingly demanding and selective clients, Thema - A Family Factory was the first company to see the emergence of a new direction, to understand the growing need for distinction, and to respond to the demand for custom products.
The increase in the demand for personalised and unique products immediately clashed with the poor level of efficiency of traditional machines, which were conceived and constructed for serial production: frequent pauses for resetting, and long periods of down-time in fact caused countless delays and greatly increased production costs.
These difficulties led to the emergence of a concept. Thema understood that a change in requests had to coincide with innovation in the production system. This idea led to an exchange of information for the creation of new concept 4 machines through the research and development of Thema - A Family Factory with the collaboration of CTS SISTEMI SRL.

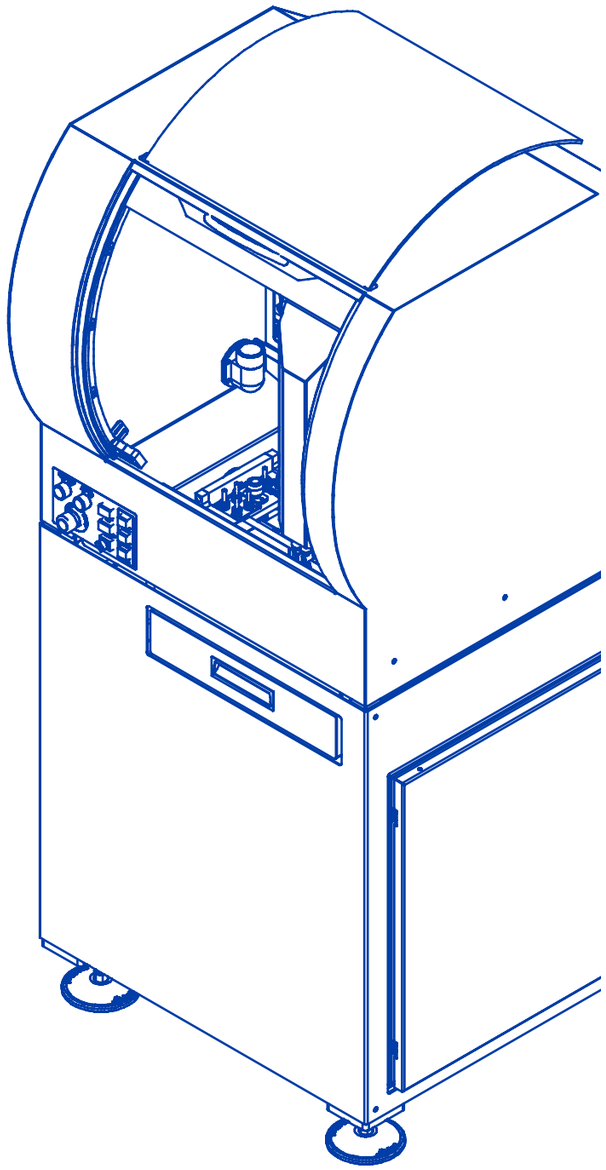
- EYEBOX
- BOOSTER M
- BOOSTER EVO
- BOOSTER HY

Four innovative machines which have led to a reduction in down-time, an increase in production and a significant reduction in costs. The production of personalised products has increased from 20 models with standard machines to 120 units per day with our technology, an increase of 500%.
Producing 100 pieces, each one different, in the same amount of time that a traditional machine takes to serial produce 100 pairs of glasses; a significant step forward in producing glasses like never before.

FILOSOFIA


EYEBOX

A 5-axis milling station, conceived and designed exclusively for the production of glasses in a limited quantity but with extreme precision.
EYEBOX is set up for the rapid production of different models, perfect for high-quality personalised glasses.
Due to its size, its reduced weight and its studied design, it is ideal for opticians seeking to carry out low-scale productions in their shop.
The EYEBOX concept can be successfully applied to rapid prototyping and has the advantage of producing prototypes directly in acetate.
This is a step forward in terms of industrialisation of designs compared to 3D printing. As well as the material, the finish and the colours of the sample are all original, and therefore it corresponds exactly to the item that will go into production.
Although designed for reduced use, it is constructed like a machine for industrial purposes.
Its compact size does not affect its reliability and extreme precision.
The vice operation, in gripping the sheet, excludes the use of frame chucking expansible devices, thus reducing resetting times and significantly reducing costs;
The average production time for a standard pair of glasses is 4 minutes.
Tested and certified for 4 years of daily production for Thema - A Family Factory;

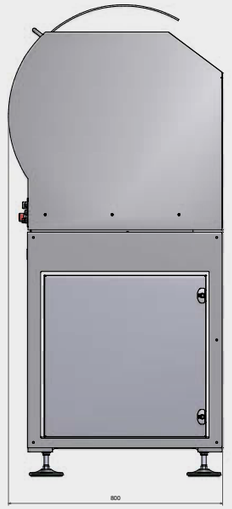


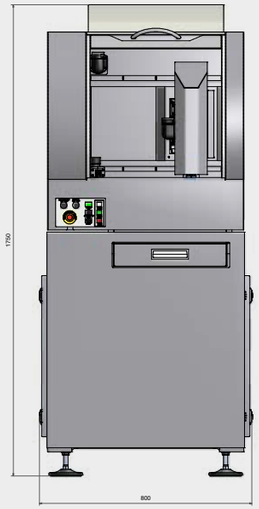
DESIGN

TOOL HOLDER

5 AXES AND ELECTRO-SPINDLE MOTOR

TECHNICAL SPECIFICATIONS



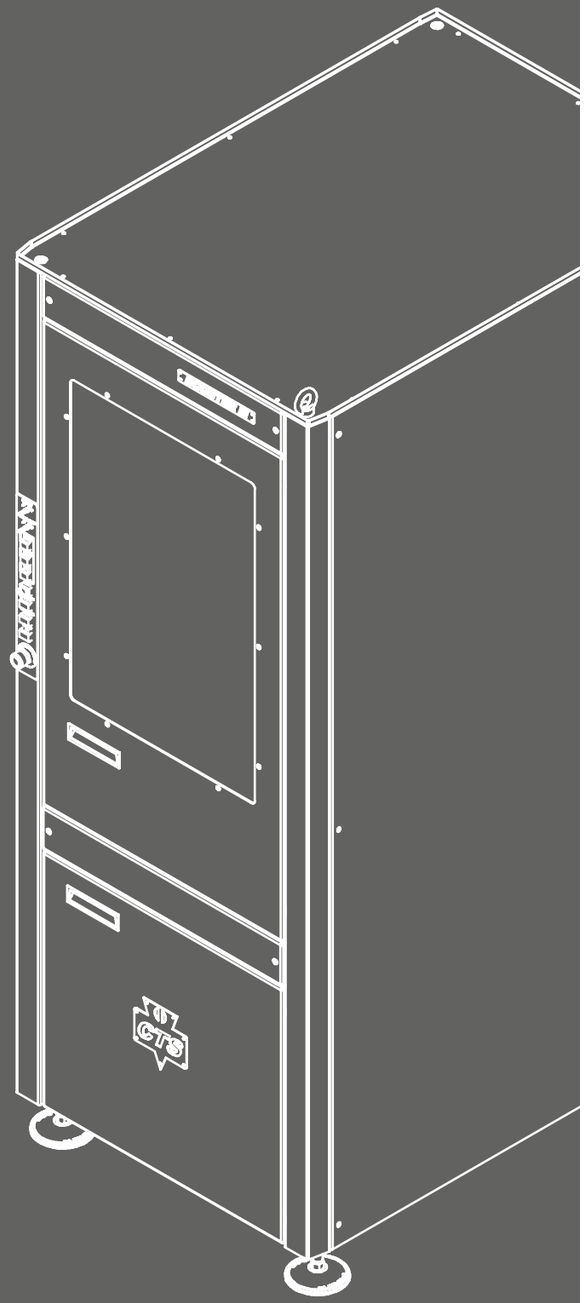


- 5 axes;
- X axis travel 250 mm;
- Y axis travel 100 mm;
- Z axis travel 130 mm;
- A axis travel +/- 30°;
- B axis travel continuous;
- Manual loading;
- Manual vice closing;
- 6 mm gripping chuck;
- 6-position tool storage with tool presetting;
- Air-cooled 1 KW 40,000 rpm electro-spindle motor;
- Maximum speed 15m/mm;
- Acceleration 10 m/s^2;
- Max sheet size 160 x 85 x 8 mm;
- Single-phase operation (significantly reduced consumption, 3 kv; 220 V);
- Mass: 300 kg;
- Dimensions 800 x 800 x h 1750 mm;
- D. Electron Z32 control;

EYEBOX

BOOSTER M

5-axis milling station, designed for the production of personalised glasses.
An evolution of EYEBOX with a more industrial design, it handles medium-small scale productions.
Fitted with a vice system, the absence of frame chucking expansible devices reduces long waits between one process and another with almost zero machine down time.
Versatile, it allows for the production of different models in a short space of time.
BOOSTER M can be used for prototyping and offers direct samples in acetate with original colours and finishes: improved quality and lower costs compared to a 3D-printed prototype.
An easy and intuitive machine to use, with extremely precise mechanics.
Energy efficiency 4.0.
The average production time for a standard pair of glasses is 3:30 minutes.
Tested and certified for 4 years of daily production for Thema - A Family Factory.



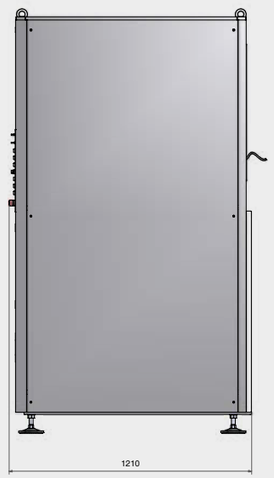
BOOSTER M

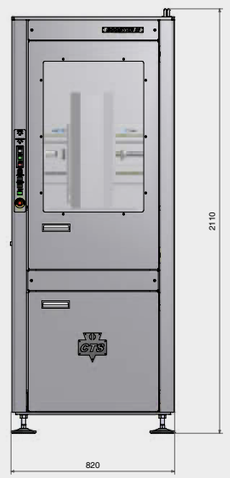
DESIGN

5 AXES AND ELECTRO-SPINDLE MOTOR

PRESETTING

TECHNICAL SPECIFICATIONS



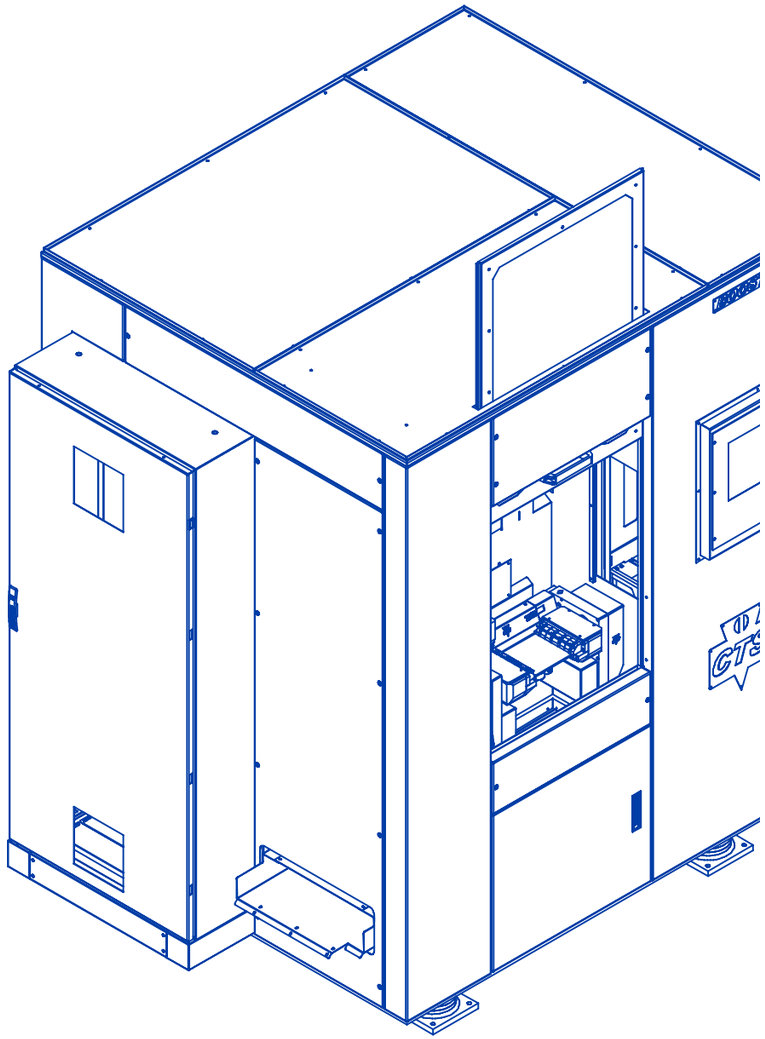


- 5 axes;
- X axis travel 250 mm;
- Y axis travel 250 mm;
- Z axis travel 150 mm;
- A axis travel continuous;
- B axis travel +/- 30°;
- Manual loading;
- Automatic vices;
- 6-position tool storage with tool presetting;
- Water-cooled 40,000 rpm electro-spindle motor;
- HSK E25 chuck;
- Maximum speed 15m/mm;
- Acceleration 10 m/s^2;
- Max sheet size 86 x 150 x 25 mm;
- Single-phase operation (220 V; 6 KW);
- Mass: 750 KG;
- Dimensions 820 x 1250 x h 1950 mm;
- D. Electron Z32 control with external PC;

BOOSTER EVO

A machine designed for the continuous production of glasses, ideal for personalised productions, it allows the creation of frames with complex shapes in a single operation without successive processing.
The blocks, which are picked up from the loader by a pneumatic arm, are held in place with an innovative vice system, which guarantees increased manufacturing consistency and lower costs than traditional methods with frame chucking expansible devices.
Compared to traditional machines, preparation time is almost completely eliminated. BOOSTER EVO can produce 100 models, each one different, or 100 of the same model in the same amount of time.
The vice can be adjusted manually and allows items of a width of between 70 and 150 mm to be gripped.
The finished item is unloaded into a separate drawer which is easily accessed by the operator.

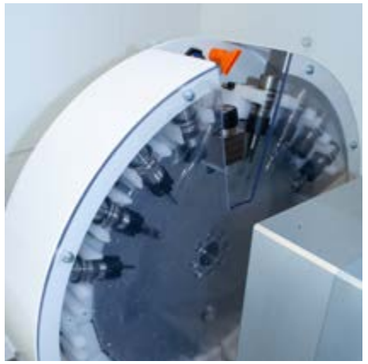
Very easy and intuitive operation.
Medium-high production capacity.
Energy efficiency 4.0.
The average production time for a standard pair of glasses is 3:30 minutes.
Tested and certified for 4 years of daily production for Thema - A Family Factory.



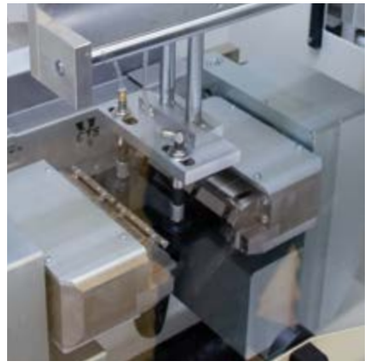
DESIGN

AUTOMATIC VERTICAL LOADING

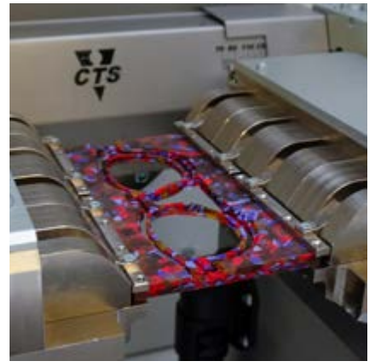
TOOL TROLLEY AND 5 AXES



TOOL HOLDER

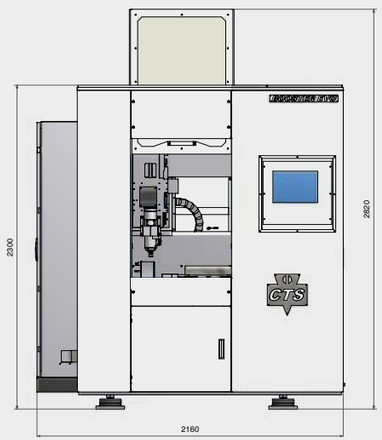


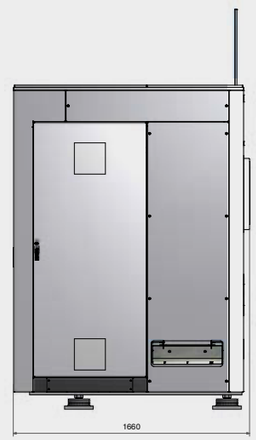
AUTOMATIC LOADING



5 AXES

TECHNICAL SPECIFICATIONS





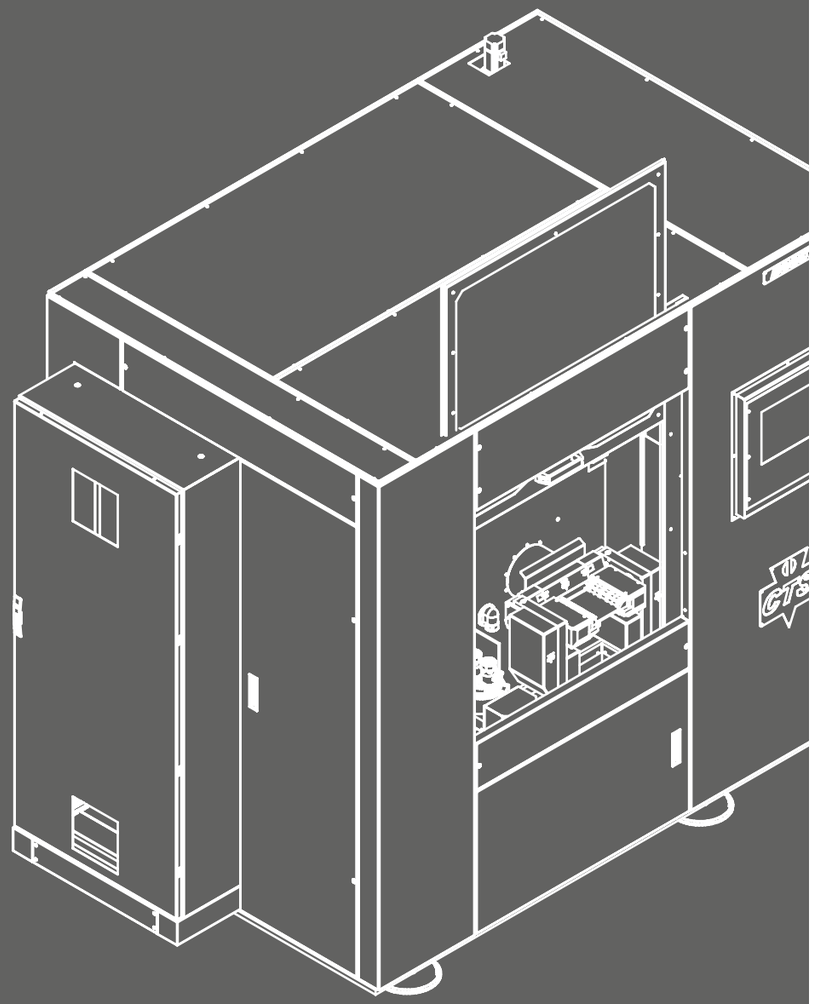
- 5 axes;
- X axis travel 500 mm;
- Y axis travel 200 mm;
- Z axis travel 250 mm;
- A axis travel continuous;
- B axis travel +/- 30°;
- Automatic loading;
- Vice adjustable automatically;
- Storage capacity 200 items;
- 19 position tool changing:
- Storage height 1000 mm;
- 3 KW 40,000 rpm electro-spindle motor;
- HSK E25 chuck;
- Maximum speed 60 m/mm;
- Acceleration 10 m/s2;
- Max sheet size 160 x 160 x 25 mm;
- three-phase 380 V operation;
- Mass 2200 kg;
- Dimensions 2200 x 1650 x h 2300 mm;
- D. Electron Z32 control;

BOOSTER EVO

BOOSTER HY

A five-axis milling station studied, designed and manufactured exclusively for the optical industry; applied to the automatic processing of acetate frame fronts, it is ideal both for high-quality personalised productions and for serial and continuous production.
An evolution of traditional frame chucking device technology, combined with the new form of processing created by Thema - A Family Factory, HY allows the necessary configuration to be selected according to production requirements.
New generation frame chucking expansible devices, produced and patented by Thema, are more stable, more precise and allow for increased consistency in manufacturing.

- Less wear compared to traditional frame chucking expansible devices;
- The modules are interchangeable;
- As well available for purchase, new modules (frame chucking devices) can be produced by the machine itself;
- They allow a significant reduction in machine down time and production costs.



Booster HY is flexible, passing from serial production with modules (400 pieces in 8 hours of operation) to the production of “custom” glasses, without the down time typical of traditional machines.
The innovative vice system allows the production of 100 different models without breaks for resetting, cancelling machine down time (100 models, each one different, produced as though they were 100 of the same model).

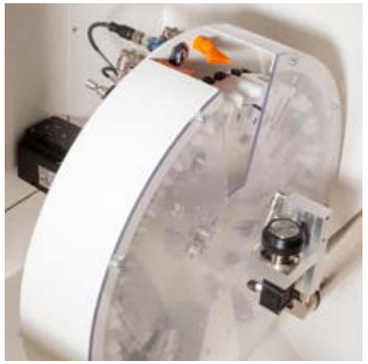
Advantages:
Functionality and flexibility.
Easy to programme and manage.
Elevated production capacity (industrial).
Energy efficiency 4.0.
The average production time for a standard pair of glasses is 3:30 minutes.
Tested and certified for 4 years of daily production for Thema - A Family Factory.

BOOSTER HY

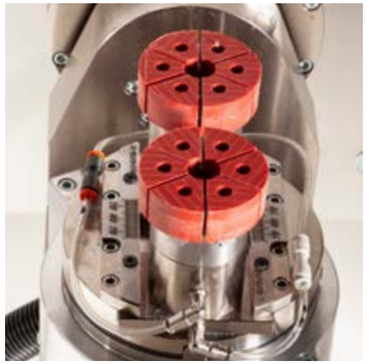
DESIGN

AUTOMATIC LOADING

TOOL HOLDER, FRAME CHUCKING EXPANSIBLE DEVICES AND 5 AXES



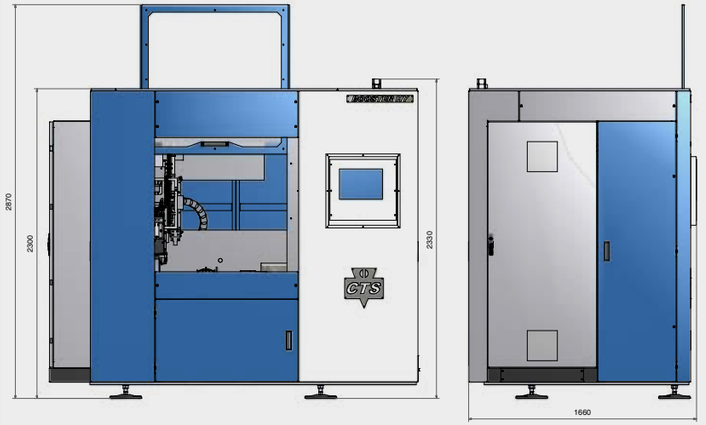
TOOL HOLDER



FRAME CHUCKING EXPANSIBLE DEVICES

5 AXES

TECHNICAL SPECIFICATIONS



- 5 axes;
- X axis travel 950 mm;
- Y axis travel 200 mm;
- Z axis travel 250 mm;
- A axis travel continuous;
- B axis travel +/- 30°;
- B1 axis travel +/- 120° (frame chucking devices);
- C axis travel continuous (frame chucking devices);
- Rack loading (no regulation for size required);
- Automatic vice closing;
- Storage capacity 200 items;
- 20 position tool changing:
- 3 KW 40,000 rpm electro-spindle motor;
- HSK E25 chuck;
- Maximum speed 40m/mm;
- Acceleration 10 m/s⊠2;
- Max sheet size 100 x 160 x 25 mm;
- three-phase 380 V operation;
- Mass 2900 kg;
- Dimensions 2800 x 1650 x h 2300mm;
- D. Electron Z32 control;

CONSOLE

SPECIFICHE TECNICHE

Operating Temp. Range:+5 ÷ +40°C
Weight Kg:16
Dimensions mm (LxHxW):482x444x205
Supply Voltage:230 Vac
Connections:Ethernet, USB

CNC Z32 C15 FlorenZ
Compact video operator's terminal, including CNC, alphanumeric keyboard, machine operating panel:
Includes alphanumeric keyboard and a simplified machine operating panel
Functional keys near to the screen
Connected with the electrical cabinet through a single Ethernet cable
FlorenZ operating system
24 optoisolated Inputs and 8 outputs 0.5A 24Vdc available for console buttons and lamps

CNC characteristics:
Milling and turning functionality
Special functions for plasma cutting and laser cutting
G-code part-program
Up to 10 interpolating axes programmable in a single block
Reading speed up to 11000 blocks/sec (G1/G2/G3 blocks from internal memory)
Huge dimensions part-programs executed in DNC from hard-disk
Dynamic look-ahead, more than 500 blocks
Sophisticaded jerk control limits the mechanical stress
High-speed machining and super-finishing for moulds
Canned cycles and macros
Full support for rotary heads and tables (5 axes RTCP for blades, blisks, moulds,...)
Gantry axes
Multiprocess: max 6 simultaneous and independent processes
Up to 32 digital axes and 16 analog axes

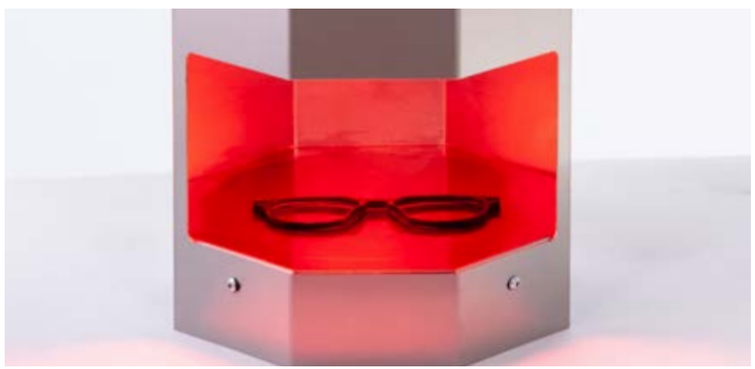
Operator's interface software:
FlorenZ operating system (D.Electron distribution of Linux)
D.Electron operator's interface software
Allows end-user interface personalization
Optional Windows license running in a Virtual Machine for running Microsoft Windows based softwares

PLC and installation:
Integrated PLC with bi-directional, real-time access to the CNC data
Fast sections of PLC down to 2 mS, synchronized with the part-program
Integrated PLC editor, debugger and digital oscilloscope
Black-box function
Easy definition of the digital drives settings
LAN connection through Ethernet TCP/IP
Teleservice via Internet

ACCESSORI

BARREL TUMBLER

A machine for the finishing and polishing of frame fronts and temples, equipped with three separate barrels and a convenient drawer for powder recovery. The temperature is monitored and thermoregulated, while the cycles are regulated by a digital timer.
It is equipped with full housing and a door, which makes it extremely quiet and avoids the spreading of dust.
Anti-intrusion protection is provided by a certified safety module.

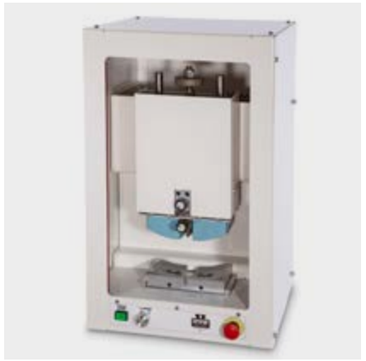


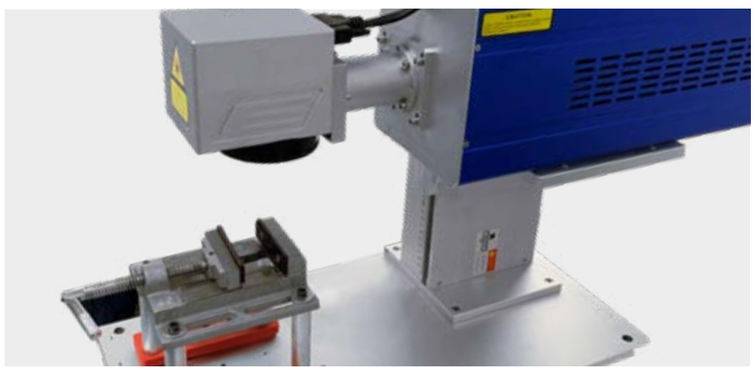
OVEN

A very compact oven equipped with an infra-red lamp to heat frame fronts and prepare them for bending. The opening for the insertion of the frame front has been studied to avoid accidental contact with the lamp. A practical thermostat allows the temperature to be regulated according to the materials used. The oven has full housing.

BENDING PRESS

A machine which creates the desired bending of the frame front, with fixed forming mould and adjustable silicone pads. The forming mould is fixed in position, while the silicone pads and the nose bending tool can be adjusted as necessary. Fitted with an anti-crushing safety system: the photoelectric barriers prevent hands from entering the machine while operations are under way. Operation is completely automatic. The machine only requires a power supply in order to function. “Plug and play”, the only bending press which works without compressed air.



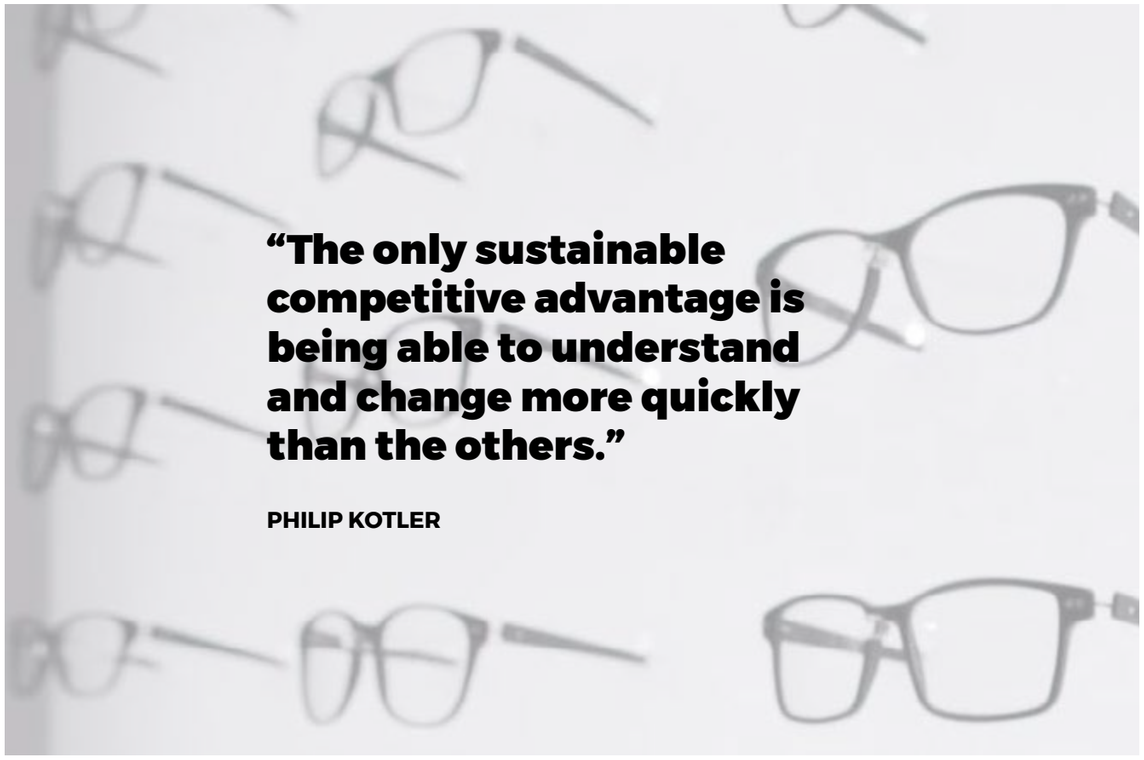


LASER

30 W CO2 cutting laser for non-metallic materials.

TEMPLE TIP HEATING OVEN

Oven equipped with an infra-red lamp for heating temple tips. Can hold up to six pairs of glasses arranged in two rows, with each row heated to a different temperature.
When the glasses are placed in the housing, a fibre optic sensor starts the programmed heating timer. A high-visibility indicator light advises the operator that the operation is complete.
Very compact, without any moving mechanical parts, and extremely safe for the operator, it is fitted with small openings for the insertion of the temples which avoids contact with the lamp.



ASSISTENZA

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