

# EVO

## Float Cutting



EN

Flat Glass Technology

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we • glass

**we** ●

# glass

As a global leader in flat glass and hollow glass processing technology, we have been helping to shape one of the most beautiful and useful materials in the world for over 60 years. Its unique qualities, combined with the passion for technology and innovation, guide us in seeking for newer and more effective solutions to improve and expand its use.

**we cut glass**

# EVO, the platform that goes beyond cutting

The EVO cutting platform is the top of the range Bottero cutting systems, offering exclusive performance and flexibility. Thanks to the option of equipping the machines with two additional tools besides the cutting tool, the EVO systems can be equipped, in addition to the low-e glass grinding, for example, for laser cutting or labelling of the processed piece. This option makes the EVO systems ideal for forming part of the automated and controlled production flow, which is typical in advanced glass factories and set forth in the "Industry 4.0" regulation.



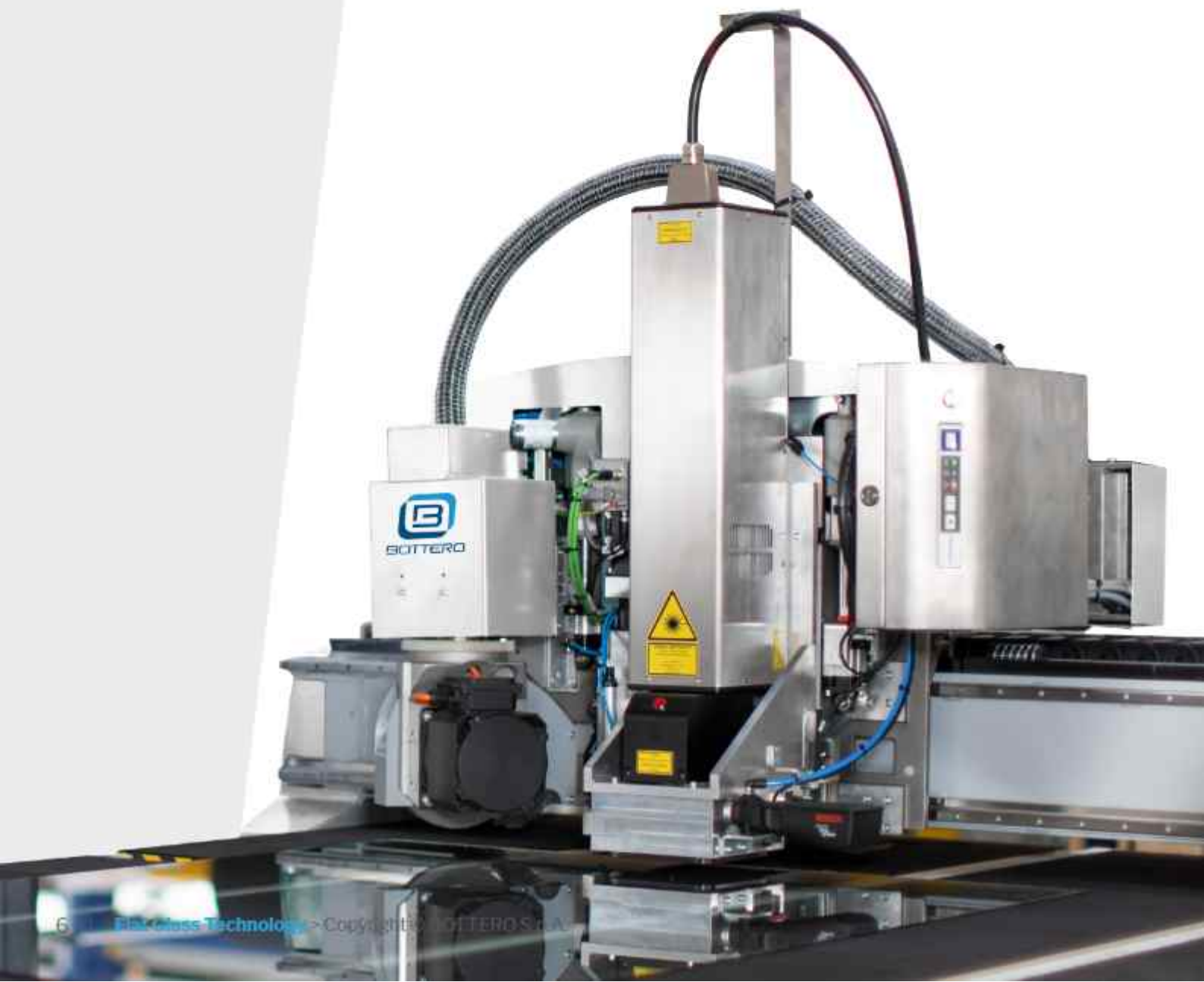
Application examples that use the 3 tools simultaneously, which can be installed on the EVO cutting platform.



your brand here 

# The Range

The EVO range stands out due to its modularity and versatility, thanks to which the float cutting tables can be totally configured according to specific customer requirements: from stand-alone cutting tables intended for small productions, up to intensive high automation level production systems, fully integrated with Low-E grinding devices and marking, and loading and breakout modules.





### 343 EVO

Cutting, grinding and marking table fully integrated with manual or automatic loading and breakout modules, intended for applications requiring high productivity. The 343 EVO cutting table is fixed and complete with belt conveyor, automatic selection of cutting pressures, Shape Scanner + Scan Cad, optimiser on the machine and BCMS Windows.

Plank Type	<b>On-line Cut</b>
Processed glass	<b>Float / LOW-E &amp; TPF</b>
Processing	<b>Cut + 2 Additional Tools</b>
Automation level	★ ★ ★ ★ ★



### 363 EVO

Loading, cutting, grinding, marking and breakout table fully integrated with manual or automatic loading and breakout modules and it can be coupled with cutting tables for laminated glass. The 363 EVO cutting table is available in the two fixed and tilting versions and is complete with air cushion with quick closing and belt conveyor, automatic selection of cutting pressures, Shape Scanner + Scan Cad, optimiser on the machine and BCMS Windows.

Plank Type	<b>Dual Line</b>
Processed glass	<b>Float / LOW-E &amp; TPF</b>
Processing	<b>Cut + 2 Additional Tools</b>
Automation level	★ ★ ★ ★ ★

Evaluation based on comparison with other Bottero products of the same category.

# Features





Each constructive and functional feature of the EVO range is designed to ensure extreme processing precision and maximum productivity, at the service of each specific production requirement.



## Equipment and accessories



### LMT

Surface removal system on Low-E glass with 200 mm peripheral wheel and maximum working speed of 200 m/min, is the ideal solution for large productions of low-emissivity glass. The approach stroke of the grinding wheel and its path are also optimised for shape cutting, allowing to speed up the machine cycle time, also thanks to the automatic measurement system of the grinding wheel consumption.

You can install grinding wheels with different thicknesses for different production needs, and the wheel is also able to remove any protective films (TPF).

The total coverage of the area being processed and the presence of the vacuum cleaner cancel the dispersion of dust in the environment, thus ensuring maximum safety for the operators.



## PPL

The automatic labelling system is the best solution to obtain the glass traceability and consequently more efficient organisation of the subsequent processes within the company. The labelling system fitted on the EVO cutting tables allows performing the labelling cycle and cutting cycle simultaneously, with total flexibility on the label position and on the printed text, ensuring a significant reduction of the machine cycle times.



## CO<sub>2</sub>

The laser marking system is the solution for obtaining a permanent identification of the glass and can also be used to contribute in the organisation of post processing within the company. The CO<sub>2</sub> laser system allows for high definition marking on the glass surface.

# Tilting Bed

- 1** Electric control cabinet that can be repositioned externally for cleaning and maintenance.

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- 2** Double tank for use of differentiated oils in the processing of special glass.

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- 3** Small and immediately accessible hydraulic tilting control unit.

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- 4** Fan for air cushion with quick closing system, installed directly on the tilting frame.

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- 5** Air distribution circuit integrated within the structural frame.

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- 6** Fully machined, electro-welded steel frame.

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- 7** Longitudinal and transversal wood breakout bars, activated by dedicated pneumatic cylinders.

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- 8** Tilting system with two hydraulic cylinders, balancing valves and controlled acceleration and deceleration ramps.

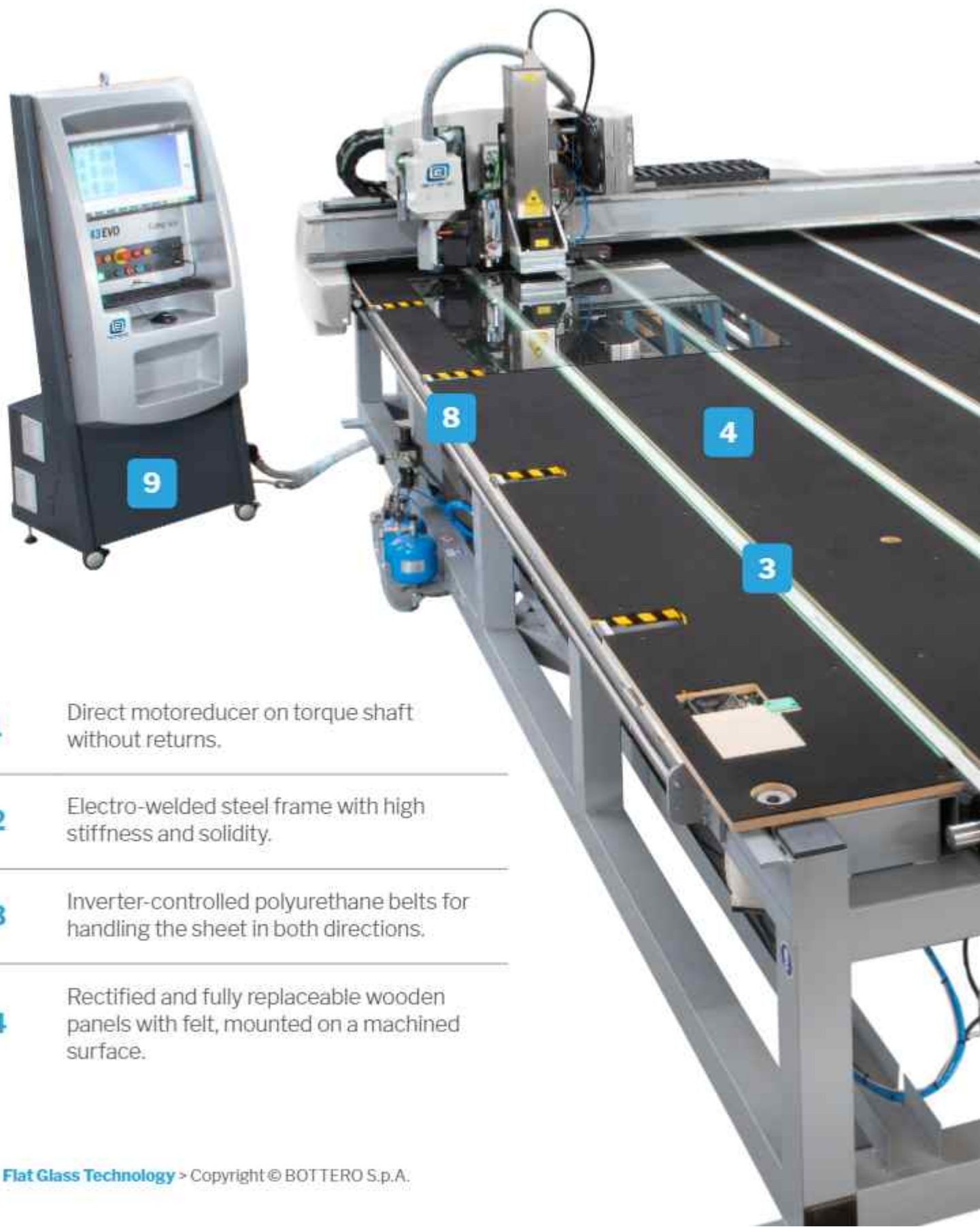
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- 9** Mobile floor pedals for controlling the breakout bars, air cushion and loading and squaring lugs.





## Breakout table with belts



- 1 Direct motoreducer on torque shaft without returns.
- 2 Electro-welded steel frame with high stiffness and solidity.
- 3 Inverter-controlled polyurethane belts for handling the sheet in both directions.
- 4 Rectified and fully replaceable wooden panels with felt, mounted on a machined surface.

- 5 Highly homogeneous and resistant 3 mm felt.

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- 6 Sheet position detection sensors and independent safety device for belt locking.

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- 7 Additional air cushion for handling 25 mm thick sheets.

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- 8 Retractable squaring lugs driven by one dedicated pneumatic cylinder.

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- 9 Ergonomic and mobile control pulpit, complete with high-definition colour monitor and intuitive optimisation and CAD software.



# Tilting Panel

- 1** Mobile floor pedals for controlling the breakout bars, air cushion and loading and squaring lugs.
- 2** Armoured cable sheaths for maximum protection.
- 3** Retractable loading lugs driven by one dedicated pneumatic cylinder and guaranteed release system.
- 4** Independent safety device for locking belts.
- 5** Inverter-controlled polyurethane belts for handling the sheet in both directions.
- 6** Rectified and fully replaceable wooden panels with felt, mounted on a machined surface.
- 7** Sheet pusher for sheet loading with glass take out.
- 8** Highly homogeneous and resistant synthetic felt.
- 9** Additional air cushion for handling 25 mm thick sheets.







# Carriage and cutting head

## Cut

Motorised cutting head, formed by an aluminium alloy body and rod with cutting tool or plastic cut. Automatic glass thickness measurement by linear encoder and consequent automatic loading of the cutting parameters preset in the software. Cutting pressure adjusted by means of proportional solenoid valve and glass surface compensation system.

## Safety

Glass presence detector and end element of the rod with controlled breakage, easily replaceable, to avoid mechanical stresses on the carriage and bridge in case of collision.

## Carriage

Aluminium carriage with control and management electronics of the on-board head, complete with optical sensor able to perform the electronic squaring of the sheet and automatically acquire a shape thanks to the Shape Scanner system.



# Cutting bridge

## Structure

Steel cutting bridge placed crosswise to the machine for maximum solidity and resistance to torsion.

## Drive

Two brushless motors with pinion motor belt transmission.

## Transmission unit

Electric axis motors for the accurate and balanced motion transmission along the bridge.

## Carriage handling

High precision and low noise carriage linear sliding guides, ground and installed on machined surface.



# Bridge Handling

## Guides

High-precision linear guides located on the opposite side to where the operator breaks the glass, to avoid leaving residues on the guide.

## Racks

Precision machined racks, ensuring maximum positioning and cutting precision, facing down to prevent the accumulation of dirt.



## Materials

Components made of highly durable and minimal wear materials, ensuring optimal performance over time.

## Maintenance

Easily accessible components, ensuring immediate and fast maintenance.





# Control cabinet

## Pulpit

Ergonomic and mobile control pulpit on independent wheels, for easy access to the interface and safety controls, complete with high-definition colour monitor and intuitive optimisation and CAD software developed on Windows operating system.

## Software

Original software able to realise any cutting, grinding or labelling scheme with optimisation of the tool path to minimise the machine cycle time. Constant electronic control of all cutting parameters, ensuring an excellent and constant score quality for an easy and fast breakout. High level CAD and optimisation software can also be installed.



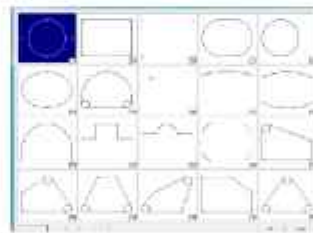
### Interface

Simple and intuitive operator interface developed on Windows operating system. The operator is guided by the interface during the entering of cutting data and in all machine operative functions. All software indications and commands are available in multiple languages.



### Editor

Editor for the manual composition of the cutting schemes, or for editing imported cutting optimisations. Particularly suitable for fast and immediate cuts, it allows entering different nested cutting levels, as well as diagonal and shape cuts.



### Shapes Catalogue

Library of parametric shapes, allows entering the most common shapes in the cutting scheme, customising them by entering the relevant parameters. The Scan Cad program allows modifying and optimising the shapes in simplified CAD environment.



### Optimizer

Simple and efficient optimiser with reduced set of parameters for greater ease of use, it processes the data while the machine is operating, without stopping or delaying the main sheet cutting function.

## Remote assistance

Remote assistance and diagnostic service through Internet connection, which ensures rapid and effective intervention of a qualified technician directly on the control panel.

# Details

The high quality standard of the EVO range is particularly noticeable in the attention to detail. Each component is carefully studied and designed to offer performance measuring up to the most demanding requirements, making the machine even safer and more performing.



## Electric control cabinet and sheaths

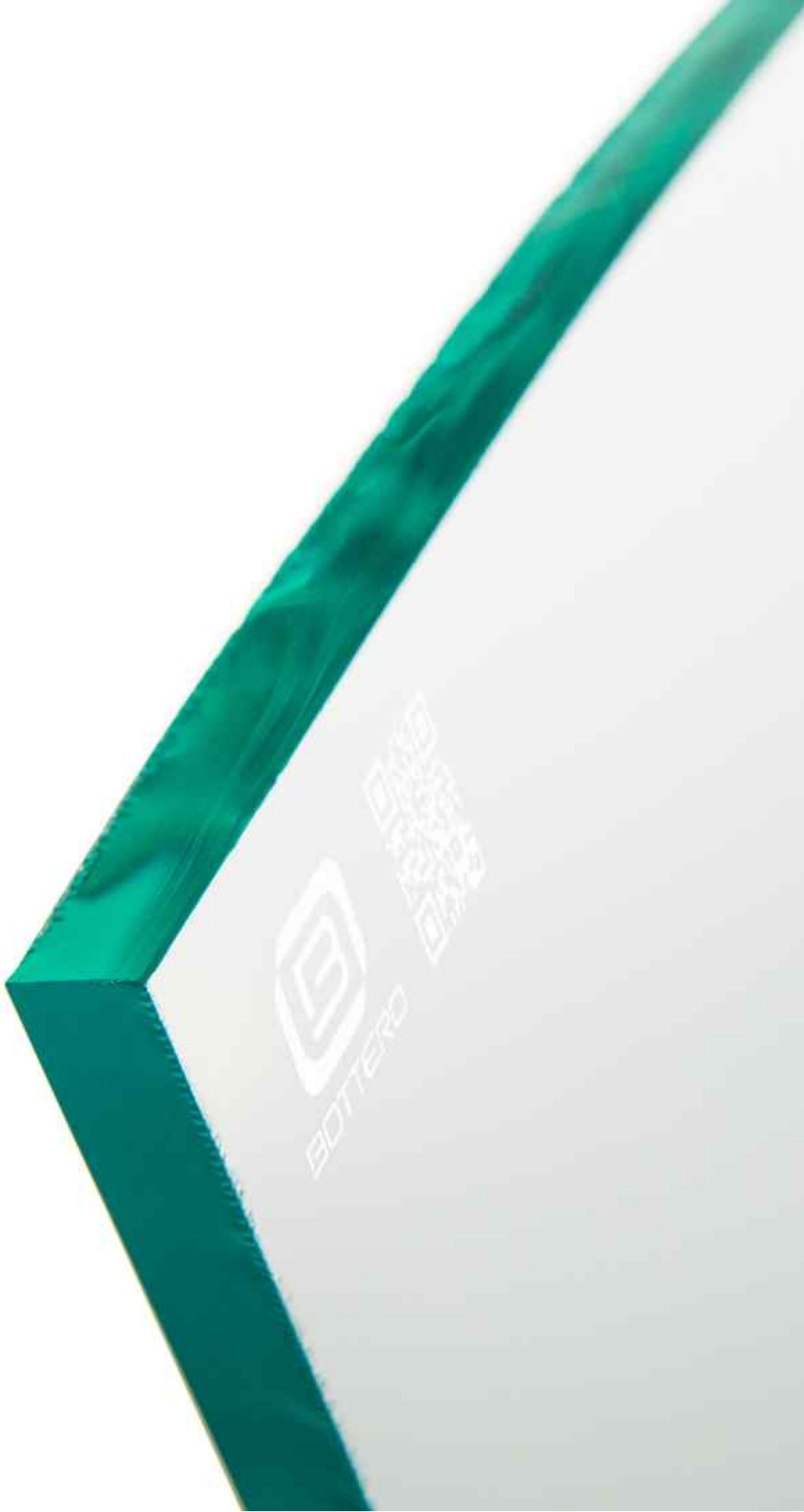
Electric control cabinet that can be repositioned externally for easier cleaning and maintenance. Armoured cable sheaths for maximum protection against accidental cuts.



## Double oil tank

Double tank for use of different oils in the processing of special glass, especially Low-E glass, for maximum production flexibility. The type of lubricant is selected by the operator or directly by the software according to the machined glass. Tanks with visual indicators for the immediate control of the amount of residual oil.







### Tilting control unit

Small and immediately accessible hydraulic tilting control unit for easy maintenance.



### Fan with quick closing

Fan for air cushion with quick closing system, installed directly on the tilting frame to ensure the absence of leaks. Air distribution circuit integrated within the structural frame, for a perfect efficiency and power of the air cushion.



### Structural frame

Rigid electro-welded steel frame to eliminate any vibration, fully machined to ensure a perfect planarity of the work table.

## Breakout bars

Longitudinal and transversal wooden bars, activated by dedicated pneumatic cylinders, for an immediate and effective breakout of the glass.



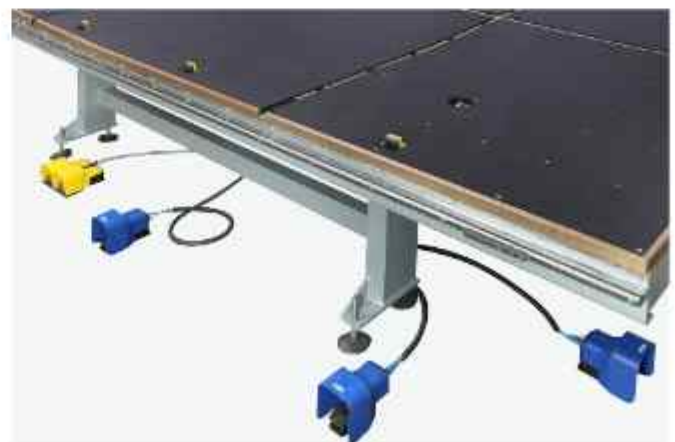
## Tilting

Tilting system with two hydraulic cylinders fitted with independent fall protection safety valves, balancing valves and controlled acceleration and deceleration ramps. Downward tilting managed by non-self-maintained push-buttons, further guarantee of operator safety.



## Pedal commands

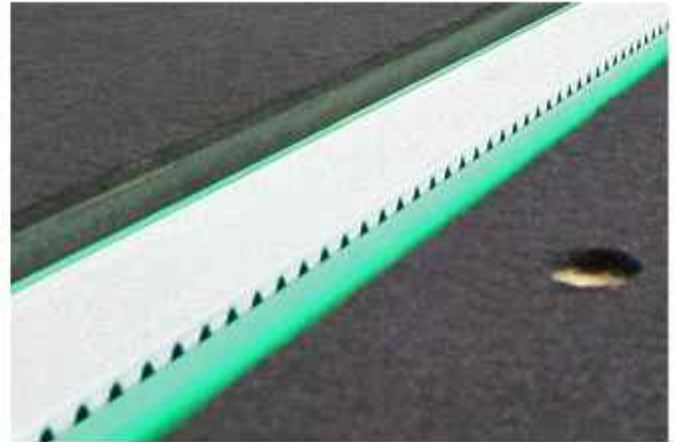
Mobile floor pedals for managing the breakout bars, air cushion and loading and squaring lugs, fully repositionable as required.





## Conveyor belts

Inverter-controlled polyurethane belts for the safe and fast handling of the sheet in both directions.



## Panels

Rectified and fully replaceable wooden panels with felt, mounted on a machined surface for a perfect planarity of the work table. Highly homogeneous and resistant felt, ensuring high performance and minimal wear.



## Squaring lugs

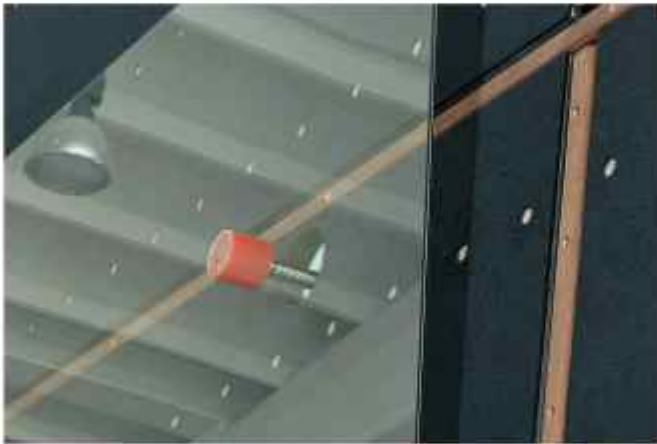
Retractable squaring lugs driven by one dedicated pneumatic cylinder. Easy and immediately replaceable PTFE lugs.





### **Loading lugs**

Retractable loading lugs driven by one dedicated pneumatic cylinder, complete with mechanical safety system for forced lowering after sheet loading. Easy and immediately replaceable rubber lugs.



### **Sheet pusher lugs**

Sheet pusher lugs for easier loading and unloading.



### **Cut lubrication**

Cut lubrication control by means of a special manual valve, also suitable for use with high evaporating oils, to ensure an excellent and constant engraving quality.

The EVO control software controls the opening and closing of the lubrication valve so as not to have excess oil at beginning and end of cut.

## Plastic cut

Engraving system of the plastic layer on the glass before the subsequent sandblasting process. Automatic management of the plastic engraving pressure and lubrication cancellation.



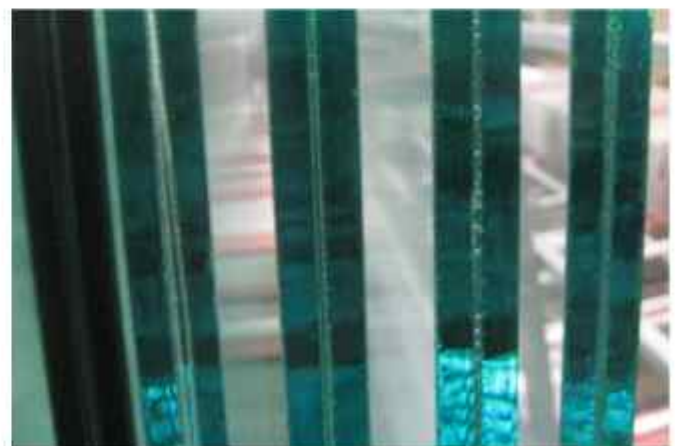
## Sheet conveyor

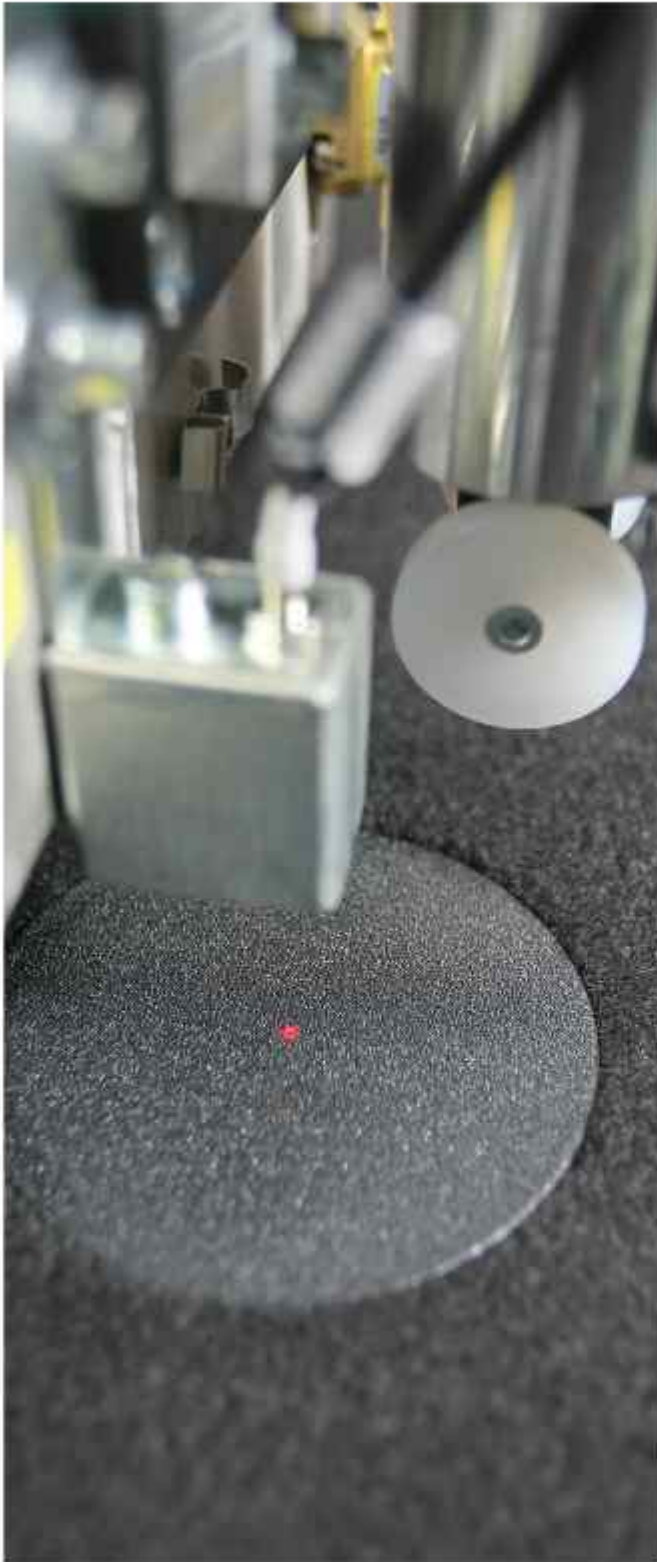
Sheet conveyor system with suction cups or lugs, driven by non-self-maintained push-buttons, to ensure operator and process safety, it allows handling the sheet on the breakout table without any effort.



## Specular Cycle

Thanks to this function, you can also cut a scheme on both sides of a laminated glass. The cycle can also be performed with schemes containing very complex shapes.





### Electronic squaring

Electronic squaring and sheet search significantly speeds-up the machine cycle time, allowing the operator to position the glass without having to square it on mechanical references. The system also allows measuring with decimal precision the glass to be cut and it can be used on the automatic lines to check the integrity of the sheet.

### Shape scanner

The shape scanner or the electronic detection and digitisation system of the templates allows maximum flexibility of production. It can detect various materials, from glass to paper, and it can detect up to 20 templates simultaneously. The software integrated with the option allows modifying the acquired profiles in a few steps and correct any template imperfections.



## Wheel grinding and measurement

Fully automatic peripheral wheel grinding and measurement cycle, to always ensure its excellent performance. Low-E removal tool is constantly measured in order to adjust the rotation speed and ensure maximum performance. The control software also alerts the operator when it must be replaced. The tool grinding, automatically set by the operator, ensures maximum quality and sharpness of the processing.



# Performance

A complete, modular and versatile range, fully configurable according to each specific production requirement.

The Bottero tables guarantee top performances in terms of cycle execution speed, accuracy and reliability over time.

<b>Working speed</b>	<b>343</b>	<b>363</b>
Maximum bridge speed during cutting	160 m/min	160 m/min
Maximum carriage speed during cutting	200 m/min	200 m/min
Maximum carriage speed during cutting	200 m/min*	160 m/min*
Maximum carriage speed with 2 tools (Cut + PPL)	200 m/min	160 m/min
Maximum carriage speed with 2 tools (Cut + Laser)	160 m/min	160 m/min
Maximum cutting bridge speed with 2 tools	160 m/min*	160 m/min*
Maximum cutting bridge speed with 3 tools	160 m/min*	160 m/min*

(\*)100 m/min with TPF

<b>Thicknesses which can be cut</b>	<b>343</b>	<b>363</b>
Standard thicknesses	2 ÷ 19 mm	2 ÷ 19 mm
Optional thickness	2 ÷ 25 mm	2 ÷ 25 mm

<b>Accuracy</b>	<b>343</b>	<b>363</b>
Cutting accuracy on straight processes	± 0,15 mm	± 0,15 mm

<b>Work table</b>	<b>343</b>	<b>363</b>
Worktable height	930 ± 20 mm	930 ± 20 mm

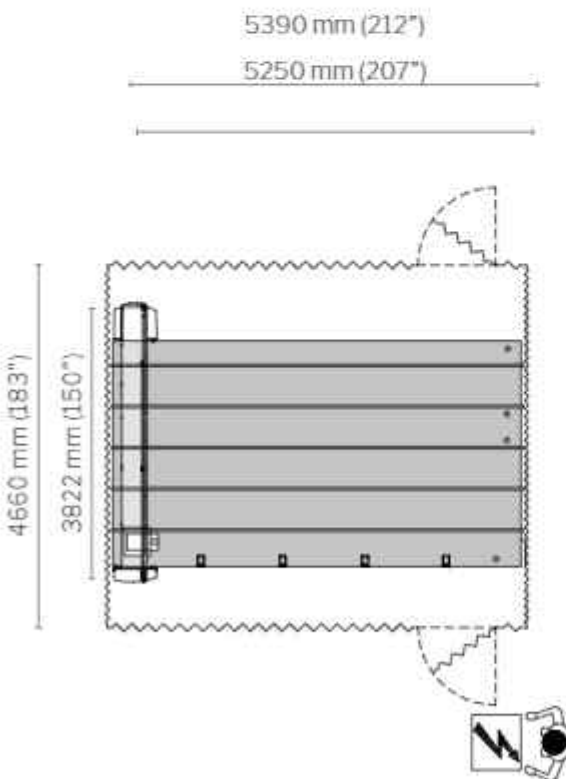


# Dimensions

A complete, modular and versatile range, fully configurable according to the specific customer's overall requirements. The following pages show some layouts of tilting tables and standard lines, in jumbo and regular dimensions. However, it is important to know that the EVO range can be customised and process sheets of up to 12 metres.

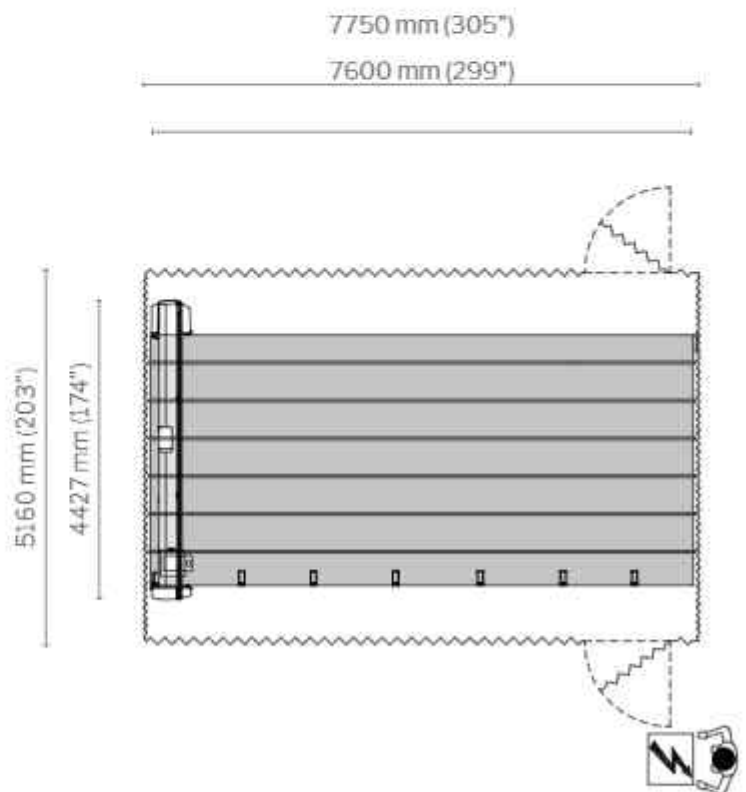
## 343 EVO Regular

	mm	in
Maximum dimension of processable sheet	3810 x 2750	150" x 108"



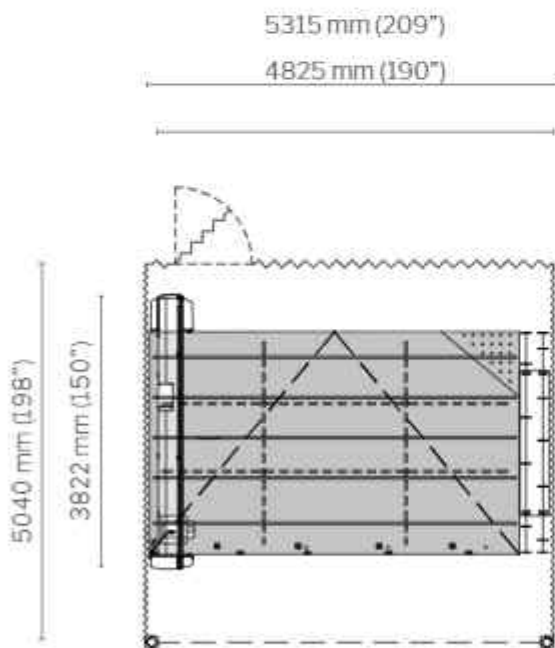
## 343 EVO Jumbo

	mm	in
Maximum dimension of processable sheet	6100 x 3355	240" x 132"



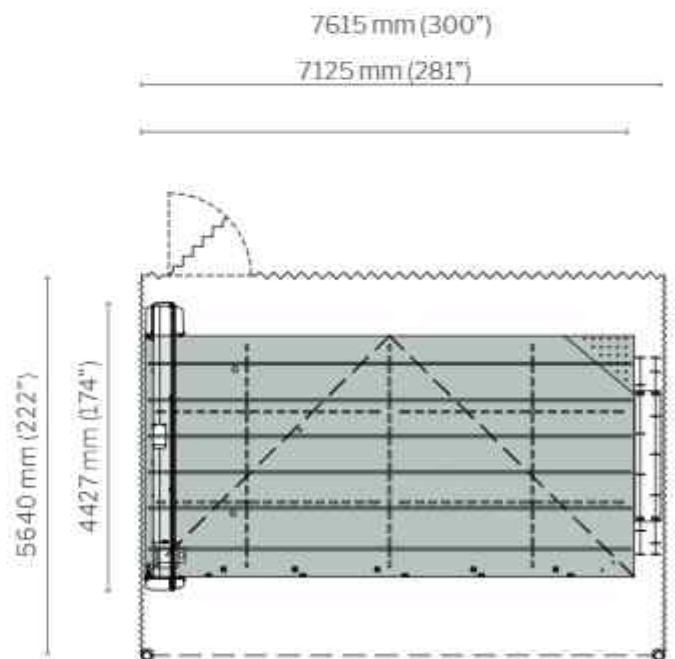
### 363 EVO Regular

	mm	in
Maximum dimension of processable sheet	3810 x 2750	150" x 108"

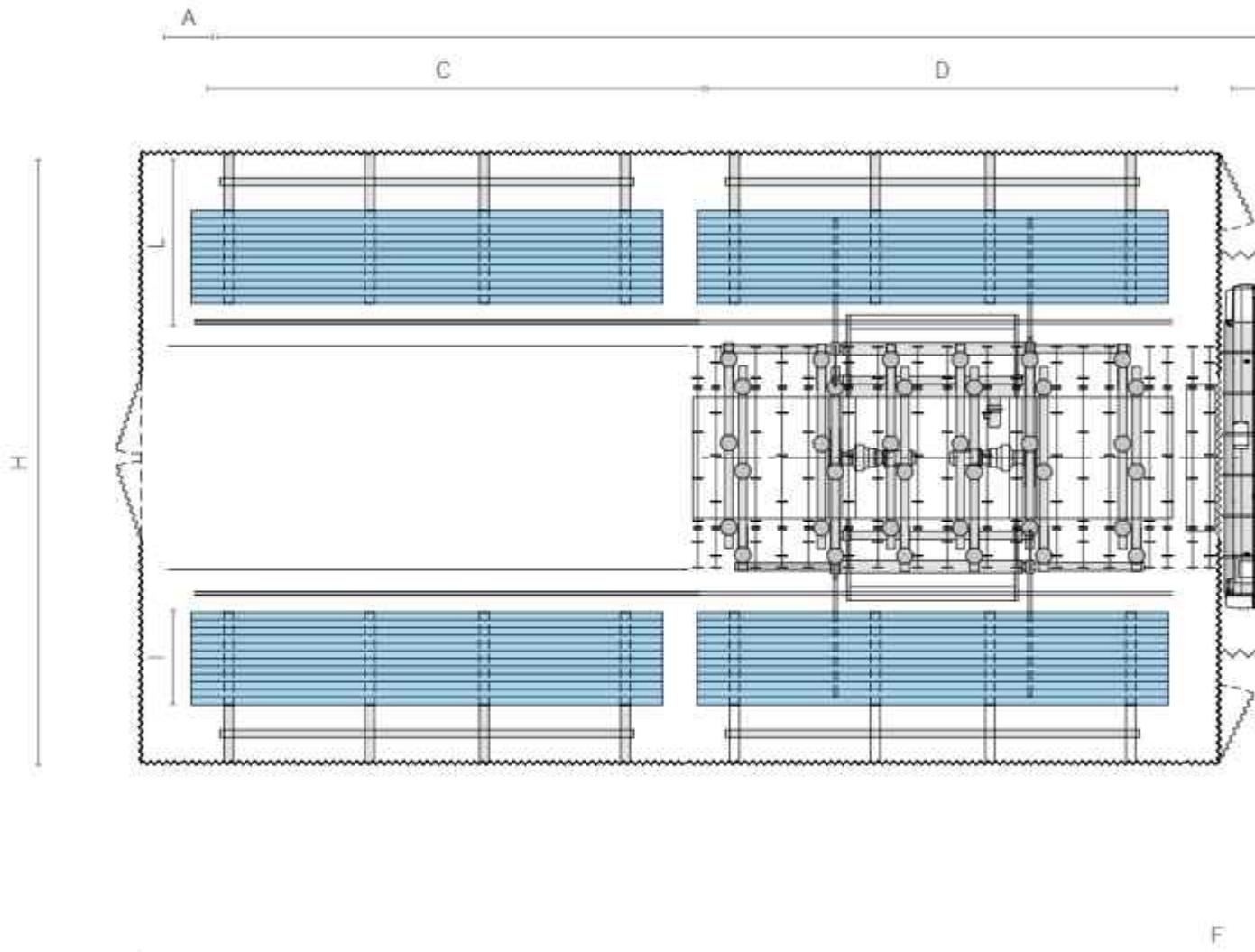


### 363 EVO Jumbo

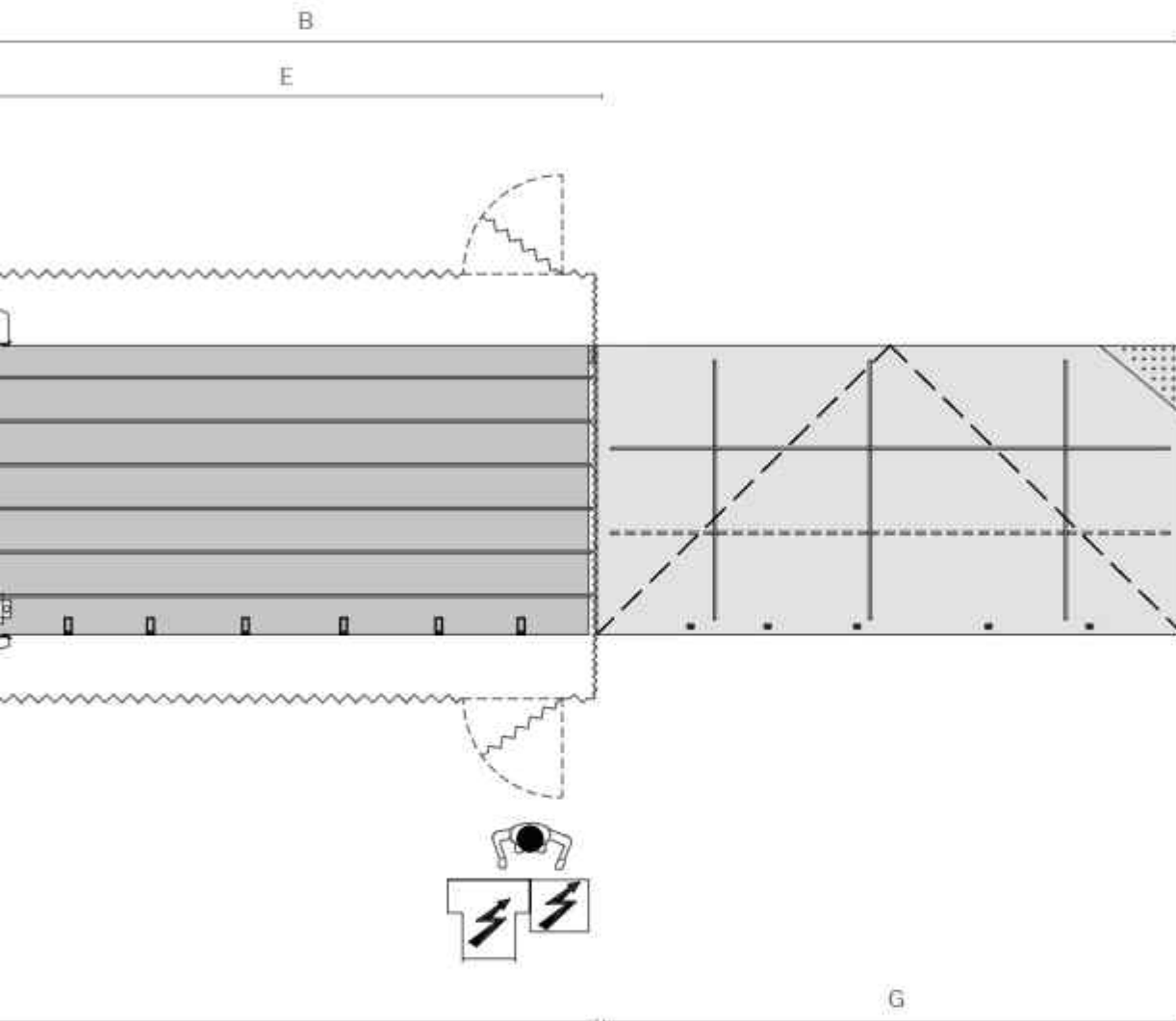
	mm	in
Maximum dimension of processable sheet	6100 x 3355	240" x 132"



## 630 CBM + 343 EVO + 103 BBM



	A	B	C	D	E
<b>Regular</b>	810 mm	19408 mm	3650 mm	3650 mm	5390 mm
<b>Jumbo</b>	655 mm	28863 mm	6100 mm	6100 mm	7750 mm
<b>Regular</b>	32 in	764 in	144 in	144 in	212 in
<b>Jumbo</b>	26 in	1136 in	240 in	240 in	305 in



F	G	H	I	L	M	N
14553 mm	4825 mm	7700 mm	1200 mm	1850 mm	2905 mm	4660 mm
21713 mm	7125 mm	7900 mm	1200 mm	1950 mm	3510 mm	5160 mm
573 in	190 in	303 in	47 in	73 in	114 in	183 in
855 in	281 in	311 in	47 in	77 in	138 in	203 in

# Options and set-ups

A wide range of options and set-ups to meet any type of production need.

	343-R	343-J	363-R	363-J
Assembly For Easy-Pro Removal By Peripheral Wheel (Low-E = Max 60mm - Easy-Pro = Max20mm)	•	•		
Assembly For Easy-Pro Removal By Peripheral Wheel (Low-E = Max 60mm - TPF = Max 20mm - Easy-Pro = Max20mm)	•	•		
Assembly For Glass Surface Marking With Co2 Laser	•	•	•	•
Assembly For Labeling System	•	•	•	•
Assembly For Low-E Edge Deletion (No TPF) By Peripheral Wheel (Max 60mm)	•	•	•	•
Assembly For Low-E Edge Deletion By Peripheral Wheel	•	•	•	•
Assembly For TPF Removal By Peripheral Wheel (Low-E = Max 60mm - TPF = Max30mm)	•	•	•	•
Differential Circuit-Breaker For TT Power Supply Systems	•	•	•	•
Transformer For Power Supply Different From 380/400/415Volt	•	•	•	•
1 Manual Insertion Frontal Lug For Reference Guiding For Lamilinea	•	•	•	•
1 Manual Insertion Lateral Lug For Reference Guiding For Lamilinea	•	•	•	•
Additional Breakout Bar For 103/353/363 Jumbo With Breakout Bars				•
Additional Breakout Bar For 103/353/363 Regular With Breakout Bars			•	
Additional Longitudinal Breakout Bar			•	•
Air Conditioning System For Electrical Cabinet	•	•	•	•
Air Cushion Module W = 380mm For Coupling Between Machines			•	•
Air Cushion	•	•		
Automatic Squaring Lugs			•	•



	343-R	343-J	363-R	363-J
Automatic Tilting Arms			•	•
Manual Tilting Arms			•	•
Backward Transport - From Table To Loader	•	•	•	•
Backward Transport - From Breakout To Cutting Table	•	•	•	•
Breakout Bars Assembly (1+1)			•	
Breakout Bars Assembly (2+1)				•
Double Cutting Oil Tank (Already Included On Machines With Assembly E/F/L/Q/T)	•	•	•	•
Foot Pedal Switch For Slow Transport - Loading Table Joined With Belts Cutting Table	•	•	•	•
Frame Hold-On The Sheet Of Glass (Only If Combined With 548LAM)			•	•
Glass Cleaning Kit For Labeling System	•	•	•	•
GS - Cutting Up To 25mm Glass Thickness	•	•	•	•
Kit For Minimum Glass Transporto (400x300mm) Mandatory For Combination With 548LAM + Kit LMC-D-E108	•	•	•	•
Kit For Minimum Glass Transporto (500x500mm) Mandatory For Combination With 548LAM	•	•	•	•
Kit For Special Glass Reading Or Other Materials (Ultrasonic Sensor)	•	•	•	•
Lean-To Device			•	•
Loading LuGS - Optional For Non-Tilting Tables			•	•
Longer Connection Between Machine And Control Cabinet (12m instead Of 7m)	•	•	•	•
Rollers Module W = 380mm For Coupling Between Machines			•	•
Sandblast Plastic Cutting	•	•	•	•
Tilting Motion Assembly			•	•
Double Control (Foot Pedal) For 1 Breakout Bar			•	•
Push Button Panel For Glass Transport	•	•	•	•
Connection To An Existing Loading Machine	•	•	•	•
Optimization + Labels + Shape Catalogue + Cad (On-Board The Machine Pc)	•	•	•	•
1 Label Roll For PPL Printers (1 Roll = 2000 Labels)	•	•	•	•

# Bottero, the choice of the greatest

**With us, you have all the experience and technology that we use to serve the largest industries**

With Bottero, you don't simply buy products but the entire experience, the technology and the organisational skills of a company that can provide very high productivity glass processing plants, and the selected supplier of some of the most important companies in the world.



more than  
**50.000** installations  
all over the world



With thousands of installations spread all over the world, Bottero guarantees first-class technical and commercial assistance.

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S.Piolo - Brasil

**Bottero Flat Glass Inc.**  
Kemersville - North Carolina - USA

**Bottero Glass Industry Co. Ltd**  
Shanghai - China



Above and to the side:  
some high-productivity lines  
manufactured by Bottero.

Code: 6 (09/22)  
Rev: 10

The images and data in this catalogue are only indicative and never override the contract engagement of Bottero S.p.A.  
For photographic reasons the products are often shown complete with accessories that are not part of the standard equipment of the machine.

## Discover the Bottero technology for **Flat Glass**



- Float Cutting
- Glass Stock Management
- Straight Line Edgers & Bevelers
- Double Edgers
- CNC
- Laminated Lines

- Coating Lines
- Float Lines
- Laminated Lines
- Mirror Lines
- Off line Cutting
- Packing Lines
- Solar Lines

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