

Cutting tables

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Macotec: moving into
the future with

advanced technology for shaped monolithic glass cutting

*In this article, one of Italy's
machinery manufactures –
Macotec – leads us*



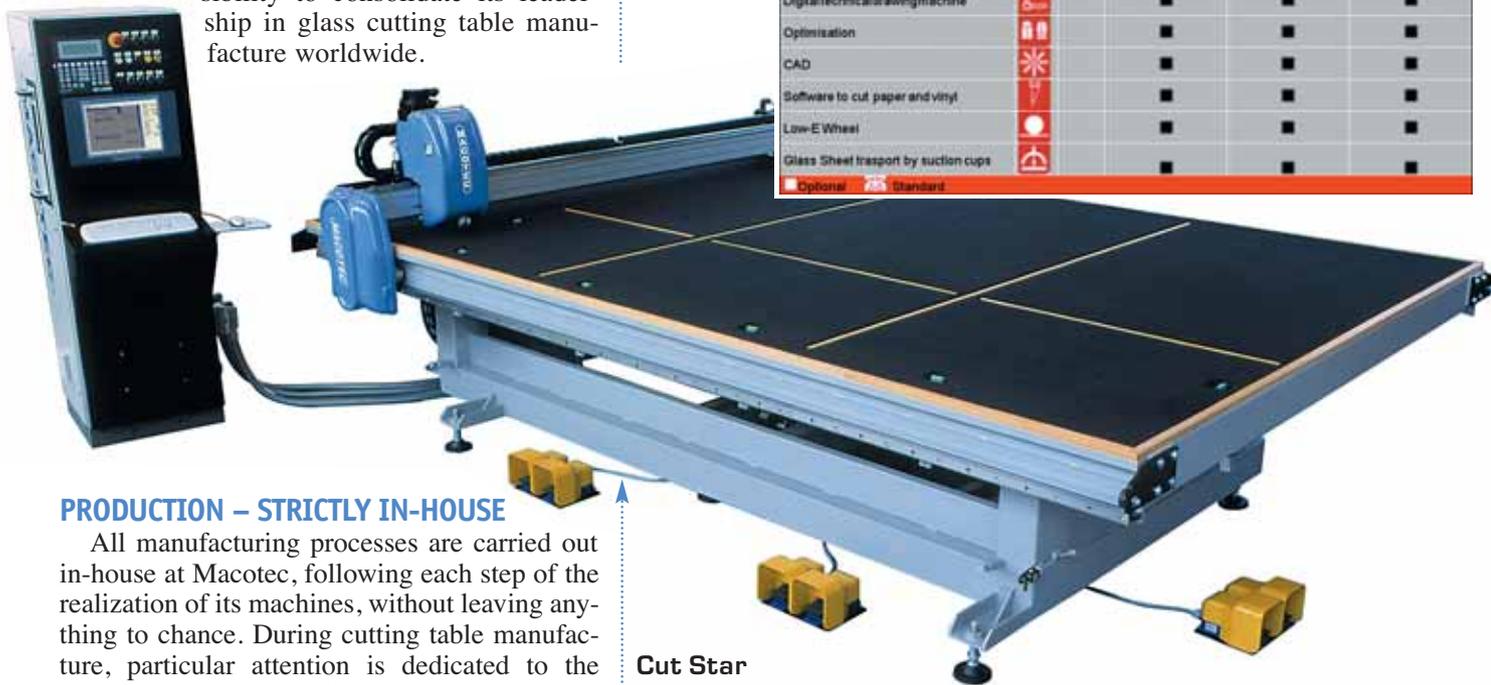
*through the production phases of its cutting tables, which, like all
machinery from the company, are manufactured completely in-house.
Starting from the frames of the same tables, right up to cutting
management software and special applications, as well as the
automatic digitizer, all features are described in detail.*

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In its specialization in the manufacture of glass cutting tables and cutting lines, Macotec is in continuous evolution, always paying great attention to technological innovation, in a dynamic approach to clients' requests.

Macotec's philosophy to face new projects with the use of advanced technology and the best components for the manufacture of its machinery, has given the company the possibility to consolidate its leadership in glass cutting table manufacture worldwide.



CUT STAR		Cut Star 3,7	Cut Star 4	Cut Star 6
Cutting dimensions	mm	3700 x 2600	4500 x 2600	6000 x 3210
Max cutting speed	m/min	160	160	160
Glass thickness	mm	2-19	2-19	2-19
Cutting accuracy	mm	±0.2	±0.2	±0.2
Installed power	Kw	8.2 Kw 380 V - 50 Hz	9.2 Kw 380 V - 50 Hz	10.2 Kw 380 V - 50 Hz
Worktable height	mm	925 (±25)	925 (±25)	925 (±25)
Weight	kg	2450	3000	4600
Overall dimension	mm	4760 x 3260	5560 x 3260	7560 x 3900
Breakout bar	n°	3	3	5
Tilting		*	*	*
Automatic cutting pressure		*	*	*
Cylinder to lift the sheet		■	■	■
Dual reference stop		■	■	■
Table digitiser		■	■	■
Digital technical drawing machine		■	■	■
Optimization		■	■	■
CAD		■	■	■
Software to cut paper and vinyl		■	■	■
Low-E Wheel		■	■	■
Glass Sheet transport by suction cups		■	■	■
		Optional	Standard	

PRODUCTION – STRICTLY IN-HOUSE

All manufacturing processes are carried out in-house at Macotec, following each step of the realization of its machines, without leaving anything to chance. During cutting table manufacture, particular attention is dedicated to the tables for monolithic glass and shaped cutting, manufactured into two models: *Master Shape*, for standard production and *Cut Star* for large, mass production.

Macotec's tables are realized with strong and completely welded steel frames, able to grant maximum stability and minimum oscillations during cutting cycles. The same frames are protected against external corrosive agents by means of non-toxic multi-coating paint.

Tilting is carried out by means of two big-bore hydraulic cylinders and a hydraulic power pack. R2T anti-cutting, double steel plait flexible pipes guarantee maximum safety. Each hydraulic cylinder is complete with safety valves able to stop the cylinder immediately in the case of loss of pressure.

19-millimetre panels of medium density wood are fixed on the working plane. To grant maxi-

Cut Star cutting table for mass production

imum planarity, the wooden panels are "low tolerance" type and installed by specialized technicians. To avoid possible bulging of the wood in the case of high humidity or accidental discharge of liquids on the table, the wooden panels are waterproofed, while high resistance to abrasion is guaranteed by a lining of 100-per-cent polypropylene carpeting, five-millimetres thick.

Painted listels of very strong wood are fixed on the perimeter of the table, exactly at the corners, so to save the life of the carpeting and simplify the operation of manual breaking of the glass sheets.

Air-cushion for glass movement

An air cushion, necessary to simplify the moving of the glass sheets, is driven via foot pedals. The air cushion is created by means of a

Cut Star's low-E wheel



blower that canalizes the air directly inside the main frame. The frame is perfectly welded "air-tight", which permits the maximum efficiency of the air cushion. In this way, it is possible to move glass sheets of 19 millimetres (or 25 millimetres as optional) without any effort of the operator. To reduce the time necessary for the moving of glass sheets, a special system for the fast stop of the air cushion has been installed on the suction side of the blower.

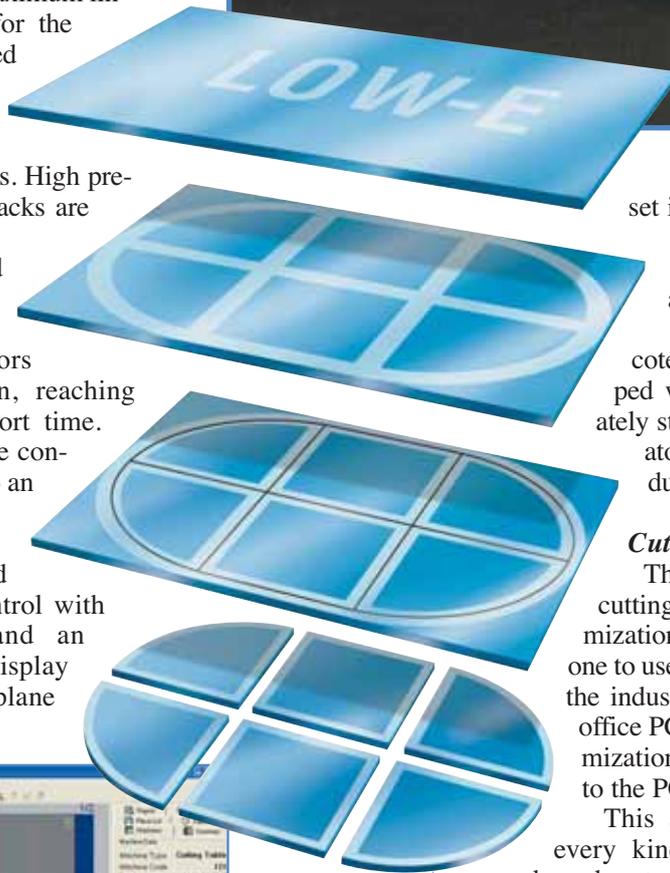
Breakout bars and cutting bridge

Macotec's tables are equipped with breakout bars to open straight cuts. The breakout bars are electro-pneumatically driven and each bar is actuated via a foot pedal installed near the bar.

The cutting bridge is made of welded steel, and there is a rectified and adjustable guide fixed on the bridge to grant maximum linearity. A movable carriage for the cutting-head support is installed on the rectified guide. The carriage is completely made of aluminium and equipped with adjustable wheel bearings. High precision guides and tempered racks are used for bridge movement.

Movement of the X, Y and Z axes is made by digital brushless motors (without maintenance). These motors grant very fast acceleration, reaching maximum speed in very short time. They are also dedicated to the control of axis position, thanks to an integrated digital resolver.

The control panel is at the side of the machine, and includes both numerical control with three interpolated axes and an industrial PC with LCD display and keyboard, for cutting plane management.



Above: The grinding procedure for low-E glass
Left: Cutting optimization

Cutting pressure, which is set in advance, so that the operator only needs to select thickness he wants to cut, is managed automatically by CN.

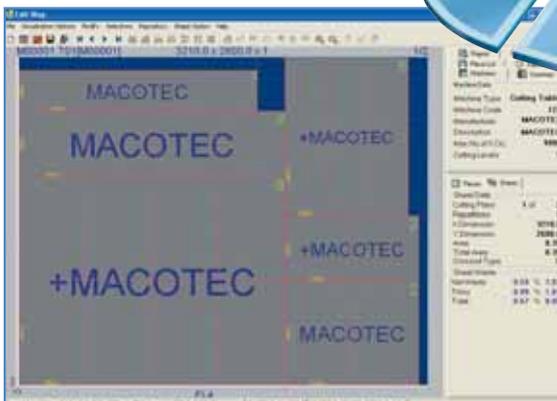
For security reasons, Macotec's cutting tables are equipped with photocells that immediately stop table functions if an operator enters the "working area" during cutting operations.

Cutting management

The tables can be equipped with cutting management thanks to optimization programmes from *Optima*: one to use at the side of the machine on the industrial PC and the other on an office PC. It is possible to create optimization in the office and transfer it to the PC at the side of the machine.

This software enables to realize every kind of complex straight and shaped cut, as well as warehouse and work-order managing.

The easy to use programmes, in Windows format, have multi-language capabilities and multi "measuring units".



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An additional reference for “dual reference stop” to cut laminated glass is installed on the machine. After the first cutting, the glass sheet is rotated and positioned to the dual reference stop. The CN calculates automatically the right position for the second cut, allowing specular cutting of laminated glass, overlapping the cuts.



Left:
Cutting paper directly on the table
Under:
Artistic glass cuts can be cut in paper

Special applications

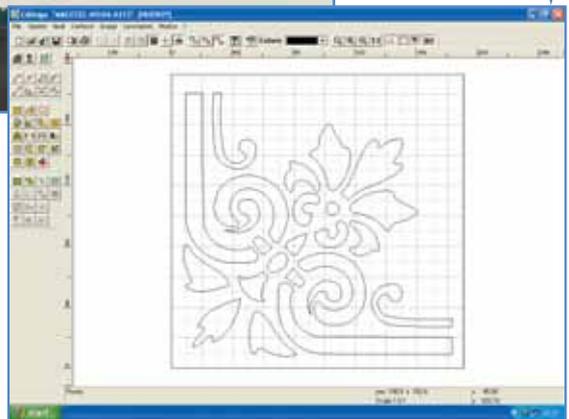
The request for special applications, such as the device to remove coating on low-E glass, are on the increase. For this particular application, Macotec has developed two systems according to the production quantities of clients. Macotec produces two models of low-E wheels: “cup-grinding” with standard production and “peripheral” for large mass production. They are able to work on straight and shaped edges. Movement is checked by CN, by means of a dedicated optimization programme.

Dust caused during grinding is removed by an automatic residue suction system inserted in a simple clean tank. Wheel rectification can be carried out as per the specific position of the table.

Automatic digitizer

Macotec’s cutting table is also equipped with an automatic digitizer, with its own specific software, able to import every kind of shape by laser. It enables to save import shapes, and to cut them directly. It is also possible to save the shapes and recall them in the optimization programme and cut them.

The table digitizer system can also digitize internal holes, notches, and multi shapes.



Macotec has developed a specific and unique tool dedicated to those who want to carry out artistic work, which cuts paper and vinyl directly on the cutting table, with the only limit being that of the cutting of the machine. This software has the possibility to import drawings in several formats and extensions, and enables to modify and duplicate, as well as to reappraise as desired or to create inscriptions with numerous fonts.

Macotec’s straight and shaped monolithic cutting tables are available in 3,700 x 2,600, 4,500 x 2,600, 6,000 x 3,210 millimetre dimension and all models can be inserted in line with loaders and break-out tables. The same machines are also equipped with belts to transfer the glass sheets to break-out table. ■

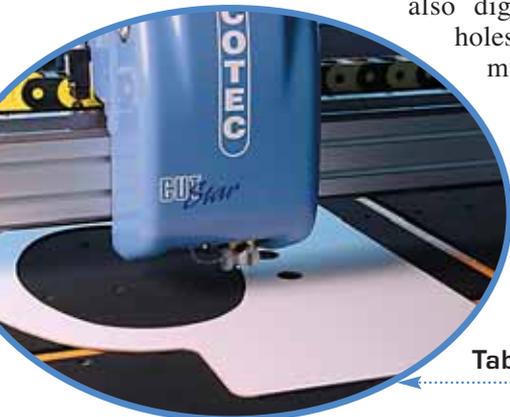


Table Digitiser



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