

112

Innovative responses for demanding processors

Peter Finch



Vitrum was a showcase not only for new Bottero technology but also for its new corporate image, built around the slogan 'Concrete solution in the world of glass' - a slogan which reflects Bottero's no-frills approach to its business, directing its R&D efforts to meeting the real, practical needs of processors through electronic and mechanical improvements. Glass-Technology International toured the Bottero area, where innovations and upgrades did indeed abound, and where the only concession to the aesthetic trend of machine restyling was a change in the colour of cutting bridges from green to grey.

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rade show practice dictates that every participant has a 'stand'. In reality, the larger exhibitors frequently put on a 'show within the show' and describing the areas they occupy as 'stands' is a massive understatement. Bottero's presence at *Vitrum 2003* was a case in point, a 2,000-square-metre showground for which visitors could pick up a floor plan to help them find the machine they were looking for.

Fortunately for *Glass-Technology International*, we also had an extremely competent guide, Marco Bramardi, an electrical engineer from the product marketing department of Bottero's flat glass division. He took us on a machine-by-machine tour and patiently explained the many innovations and upgrades implemented by Bottero in the fewer months than usual that passed between *Glasstec 2002* in Düsseldorf and this year's Vitrum. "For Bottero," Bramardi stressed, "technological innovation goes on month by month, and not year by year."

CUTTING ENHANCED, COST CONTAINED

Our guided tour began with the cutting machinery developed and constructed at the company's main plant in Cuneo, north-western Italy.

First in line were two of several totally new machines on show in Milan, the *510 LAM*, a cutting machine for laminated glass, and the *331 BKM* cutting machine for monolithic glass, both designed to offer smaller glass processors the performance of higher-grade machines at very competitive prices.

Bottero was the first company in the world to build laminated glass cutting machines and remains the market leader. At Vitrum, Bottero showed the extent of its range, showcasing not only the basic *510 LAM* but also a fully automatic line capable of producing up to 1,000 square metres per shift of laminated glass.

510 LAM

The super compact *510 LAM*, Bramardi told us, is the natural evolution of the *301* cutting table, a compact machine like the *301* but with an advanced high-precision positioning system previously found only on machines much higher in the range. The *510* has, in fact, not only the usual inlaid millimetre bar for the manual positioning of the sheet stops but also an electronic display which indicates the exact measurement as the positioning arm is moved along the



**The 530 AVL
for laminated
glass cutting**

side of the table. With a minimum investment, Bramardi explained, glass processors get the cutting quality of a much more expensive model.

331 BKM

The *510 LAM* was on show alongside the *331 BKM*, a new cutting table for monolithic glass which replaces the *131 BMK*. The overall innovation on this entry-level machine is the integration of features and performance characteristic of upper-end machines like the *352 BCS*, and at a truly competitive price.

There is, for example, a brushless motor with the same performance, in terms of acceleration, as superior tables. In addition, there are the same electronics and the same software. Electronic positioning, automatic measurement of glass size and thickness, automatic edge analysis and are all provided by the same laser measurement system as that of the *352 BCS*. The *331 BKM* also has shape-cutting and shape-scanning options. (The shape scanner was invented by Bottero, Bramardi recalled, and made its debut at *Glasstec 1998*. It remains, he said, the most powerful on the market.) With these features, a machine which used to be a basic X-Y cutting table now offers much more comprehensive capabilities.

341 BCS

The next pair of machines we saw were the *341 BCS* 'All in One' and the *530 AVL*. The *341 BCS* made its debut last year at *Glasstec*. It combines the functions of loading, cutting, transfer, break-out, tilting and air cushion handling - an ultra-compact machine that can do everything.

530 AVL

The new *530 AVL* laminated glass cutting machine takes the place of the old *AVL*, which has been "retired". The key difference, Bramardi told *Glass-Technology International*, is in the electronics. In line with Bottero's commitment to offering smaller processors high-level performance at low-level prices, the



X-cut pieces on the
550 LXY line



Y-cut pieces on
the line's 734
VSX module

530 AVL features a control system normally installed in machines closer to the top end of the range. In other words, it has the same computer as the VSX, meaning that all operations are now controlled by PC and no longer via a control panel dialoguing with a PLC. The result is a vastly improved operator-machine interface. The mechanics have been enhanced too, with more powerful air cushions and breakout structure, able to handle 10+10 millimetre laminated sheets. The 530 AVL, Bramardi said, is already selling well.

FULL AUTOMATION, HIGH-CAPACITY

Bramardi explained to *Glass-Technology International* that the amount of laminated glass cutting machinery on show clearly demon-

strated the way in which Bottero concentrates its efforts on promptly responding to market demands - most recently, this has been for laminated glass. Glass processors are having to raise their output and are thus beginning to call for greater productivity from machines. A single Bottero VSX, able to process 400-500 square metres of laminated glass per shift, noted Bramardi, is no longer necessarily enough. Hence the new 550 LXY line (on show with the all-new 378 LMT) for the X-, Y-

and, if required, Z-axis cutting of laminated glass, complete with an automatic loading capability. Demonstrations of the new 550 LXY line attracted considerable interest at Vitrum.

378 LMT

At the loading end of the line was the 378 LMT, featuring enhanced mechanics and electronics. This machine is able not only to transfer sheets from racks to the cutting table (as in the 578, from which the 378 LMT takes its name), but also to transport and position laminated sheets for cutting. This fully automatic electro-mechanical loader (60-second cycle time) can take sheets from any kind of trolley, rack or automatic shuttle storage system. The sheet is placed on the table where an air cushion and grips mounted on a bridge

then move the sheet. On the bridge, it is possible to mount options for shape cutting and low-E glass processing.

550 LXY

The 378 LMT transfers the sheet onto the line's first cutting module (that of the 530 AVL) for the X-axis cut. The X-cut pieces are separated and continue onto a 90° transfer module before moving forward to the second cutting module for the Y-axis cut. At Vitrum, this second module was, in fact, a 734 VSX, which also has a suction-cup sheet rotation capability, making it possible to automatically turn pieces for Z-axis cuts if required. Moreover, this automatic rotation now takes place nearly twice as fast as on the previous model.

The main innovation of the line is that it allows two X-cut pieces of different sizes to be sent at the same time to the Y-axis cutting module. The VSX then has two separate positioning bridges, enabling the production of a further two different size sheets with a single cut. This makes the machine extremely productive, pointed out Bramardi; at least twice as productive as a normal VSX, able, in other words, to cut 800-1,000 square metres per shift. The entire line requires just one operator at the unloading section to place the cut sheets on a rack - the rest is automatic. When we saw it, the 550 LXY line on show in Milan had already been sold.

Completing the cutting area was Bottero's top-selling 352 BCS, still billed as "the most sold cutting table in world" with over 1,000 machines installed and operating in over 80 countries around the globe. Despite the consolidated appeal of the 352 BCS, Bottero has continued to add enhancements, particularly in software and electronics. These enhancements, explained Bramardi, are often the result of clients asking for additional functions which Bottero then sees as potentially useful for other glass processors and, consequently, implements into the 352 BCS.

ADVANCES IN EDGING

671 LDG

From the cutting technology area, Bramardi led us round to the floor-space occupied by edging machinery produced at the Bottero facility in Trana, near Turin.

The first major innovation on display here was the 671 LDG loader for double-edgers (also



**The 671 LDG
feeding a
Titan line**

available with an unloading capability as the 671 UDG). The 671 LDG is able to automatically load sheets measuring up to 2,600 x 1,200 millimetres and weighing up to 65 kilograms from racks of different heights and types, with a sheet-to-sheet cycle time of 15 seconds. The larger 672 LDG/UDG can handle sheets of up to 3,000 x 1,600 millimetres weighing up to 100 kilograms, with a cycle time of 20 seconds. This sort of cycle time, Bramardi pointed out, means that the Bottero loaders are easily able to feed even the fastest edging machines.

Bramardi underlined that the very competitive price of this completely new, fully automatic

Innovative responses for demanding processors

116



machine is largely a result of the need to offer glass processors a cost-effective alternative to manual loading, also in markets where labour costs are low.

Titan 220N

As part of the integrated edging and drilling line set up at Vitrum, the 671 LDG was feeding the first of two *Titan 220N* double edgers.

Also on show was a *Titan 220LM* double edger for low-E glass (shown first at Glasstec 2002) featuring the Bottero-patented suction cup transport system, as opposed to the usual belt transport system. This enables the machine to handle any type of low-E glass. Both the Titan 220Ns in the edging line and the 220LM were sold during Vitrum, the latter, Bramardi informed us, to a "major" international glass group.

720 ATD Discovery

The 671 LDG-Titan 220N line ended with another totally new Bottero machine, the *720 ATD Discovery* twin drilling machine. Also usable as a stand-alone system, the 720 ATD has seven encoder-controlled axes and is able to perform fully automatic drilling from both left and right sides of the sheet. According to Bramardi, this in-line solution represents a considerable step forward for glass processors, since they no longer need to transfer sheets exiting an edging line to workcentres or separate drilling machines. The machine features automatic positioning

The Bottero 'stand'

of the drilling heads and enables the simultaneous drilling of holes at different distances from each edge. When integrated into a line, Bramardi added, the 720 ATD is compatible with both Bottero and other-brand double edgers. An optional automatic tool dresser, concluded Bramardi, means that practically no operator intervention is necessary. Although not part of the line at Vitrum, the new 720 ATD can obviously then be followed by a 671 UDG or 672 UDG unloading machine.

Completing the range of edging technology from Trana Torinese were an *Antares 421* CNC shape edger and four more edgers: a *907 B* beveler, a *108 F* eight-wheel straight-line edger, a *110 F* ten-wheel straight-line edger, and an *810 BCS* mitering (variable angle) machine. All are well-known, well-established Bottero machines but ones which were, nevertheless, kept busy demonstrating their capabilities for the duration of the show.

In conclusion, Bramardi drew our attention to three advanced workcentres - *Technorev*, *Multiwork* and *Technogroove* - from Bottero group company *Bimatech*, integrated for the first time in the Bottero area. ■

Information Service no. 102

See Contents for Info Service page