

## HIGH PERFORMING, VERSATILE AND COMPACT MACHINING OF SMALL AND LARGE GLASS

Denver is not only a supplier of machines for the stone and glass industries but also proposes itself as a business partner able to offer high performance and valuable solutions. These include a new vertical machining center equipped with an OSAI digital numerical control.

From the machine design through to the organization of all ancillary services, Denver's target is always to meet the absolute needs of its customers while ensuring a quick and safe return on investment.

This mission has been pursued by the company since its foundation in 1984 and has contributed to consolidating a preeminent position within the San Marino Tech Valley and the international scene for the design and production of machines for the stone and glass industry.

*«Today, more than ever - says Daniele Garattoni, Software/Automation manager - our target is to become the preferred supplier for all those requirements of both industry and manufacturers. This is why we constantly update and improve our products, aiming for continuous innovation, quality excellence and creation of smart solutions».*

As in the case of the new generation of "Advance" vertical machining centers equipped with entry-level CNC and bridge modules from OSAI, the company's historic partner.

*«Advance - points out Garattoni - is an eight axis CNC vertical machining center, which is a genuine alternative to the horizontal machining center, offering the advantage of integrated opposing drilling and reduced overall dimensions compared to all typical horizontal CNC machining».*

We're talking about a machine perfect for the production of doors, shower enclosures, stairs, balustrades, furnishing elements (such as tables, shop display stands, wardrobe display cases, mirrors) as well as laminated glasses, and components for home appliances and automotive.

*«According to formats, glass types and expected cycle types -says Eng. Garattoni- the machine can be used both in an industrial or small workshop environments, with the possibility to work slabs up to 3,000 x 1,500 mm, in thicknesses between 4 and 21 mm».*

Already used by Denver in larger machining centers (Vertigo series), the entry-level CNC has been chosen also for the new Advance range.

*«The CNC - says Garattoni - is very important in this type of process as we're talking about machining that starts from a CAD geometry, moves to a CAM ambient and is then finally converted to ISO language».*

More in general, the OSAI OPENcontrol platform offers high computational power and modularity at a very competitive cost. The control can manage 2 processes, each one executing an ISO program, and up to 8 interpolated axes. Due to its technical features, the CNC guarantees high quality finishing and, moreover, optimization of the machining centers management: gantry and dual axes management; look-ahead with 256 pre-calculated blocks; Velocity Feed Forward (VFF); Jerk control using advanced algorithms; tool magazine management, tool life, random tool, multi-pocket tool; multi-axes electronics Cam; Cross Compensation.

Two different modules are available for this CNC, based on the same hardware, that provide the management of digital servo-drives controlled by Mechatrolink III and by EtherCAT, interfacing with either the CANopen or Sercos profile (CoE or SoE).

*«In this new application - says Garattoni - we used some features of the NC never used before, such as mirror function, which helped in creating simple connections with the Cad/Cam ambient. This results in the transfer between, with very few elements, the needs of the machine with those of technological setting of the Cam world».*

Programmed to meet I4.0 requirements and customizable with several options, the new Advance series also stands out for the safety used in the machining process management. For this purpose, the company designed a “zone safety system” which constantly monitors the location of the operator. If any potential danger is detected, a dedicated PLC is enabled to make the machine safe. The result is a synergistic and optimal coupling between safety and usability.

*“OSAI - concludes Garattoni - is our strategic supplier of CNCs. An established and consolidated partnership where the human factor and the continuous technical confrontation have played a key role. An approach that is not taken for granted when interfacing with large and well-structured realities. I believe this effective partnership has generated a double and mutual benefit over the years. On our side, we can benefit from OSAI’s deep technical know-how to appreciate and make the most of the performance and functionality of the products supplied. Equally useful, I think it was, and still is for OSAI, is to be able to interface with a machine manufacturer that has always been oriented towards innovation, as well as a connoisseur of the field requirements ».*