

TECHNICAL DESCRIPTION OF

**HI SPEED 3D-SHAPER MACHINE WITH 3 AXIS CNC CONTROL
FOR FOAM SHAPING, WITH AUTOMATIC TOOL-CHANGE, OPTIMIZED FOR THE
PRODUCTION OF BODYBOARDS AND SIMILAR**



1. DESCRIPTION OF MACHINE

- 1.1. N.1 vertical milling machine with 3 interpolated axis with CNC control, Cartesian type, along the 3 axis X, Y, Z, suitable for shaping 1 to 6 blanks for each cycle, described as follow:

- number of shaping heads:	up to 2;
- number of blanks supports:	up to 6;
- linear positioning precision:	0.5 mm/1000mm;
- linear direction precision:	0.5 mm/1000mm;
- repeatable position precision:	+/- 0.5 mm;
- X axis working length:	from 1400 to 5000 mm;
- Y axis working length:	750 mm;
- Z axis working length:	230 mm;
- combined total linear precision:	0.5 +/- 0.5 mm;
- working speed:	10 – 60 cm/s;
- power supply:	380 Vac 3 phase, 50Hz

comprehensive of:

- n.1 main frame realized in carbon steel , with overall dimensions from to 2500(L) x 1300(W) x 1600(H) to 6000(L) x 2100(W) x 1600(H) mm, provided with n. 4 anti-vibrating and adjustable feet;
- n.1 couple of guides for movement along X axis, realized by means of rectified rails with ball bearing cars with maximum run from 1900 to 5000 mm. The power train is realized by means of motor-reducer, pinion gears and racks;
- n.1 couple of guides for movement along Y axis, realized by means of rectified rails with ball bearing cars with maximum run 750 to mm. The power train is realized by means of motor-reducer, pinion gear and rack;
- n.1 couple of guides for movement along Z axis, realized by means of rectified rails with ball bearing cars with maximum run of 230 mm. The power train is realized by means of motor-reducer, pinion gear and rack;
- n.1 or 2 shaping heads, each constituted of a 4.0 kW spindle motor with automatic tool change, speed from 12.000 to 18.000 rpm, 20 mm shaft tool support, n. 3 ISO cones 30 complete of 20mm diam. Clamp ER32, and suction device for foam powders produced during shaping;
- n.3 servo-controlled brush-less motors, complete of drivers, special cables, closed loop control and mounted on motor-reducers;

- n.3 cables chains for X, Y e Z axis;
- n. 1 electrical board comprehensive of complete electrical equipment installed on the machine;
- n.1 touch-screen industrial PC, MODEL Z32-C15-FZ specially made for high speed CNC controls, complete with monitor, keyboard, I/O devices, hardware and software necessary for complete functioning, predisposed for the execution of external programs in ISO language (G-CODE), and creation of proper own working sequences independently from external programs; ;

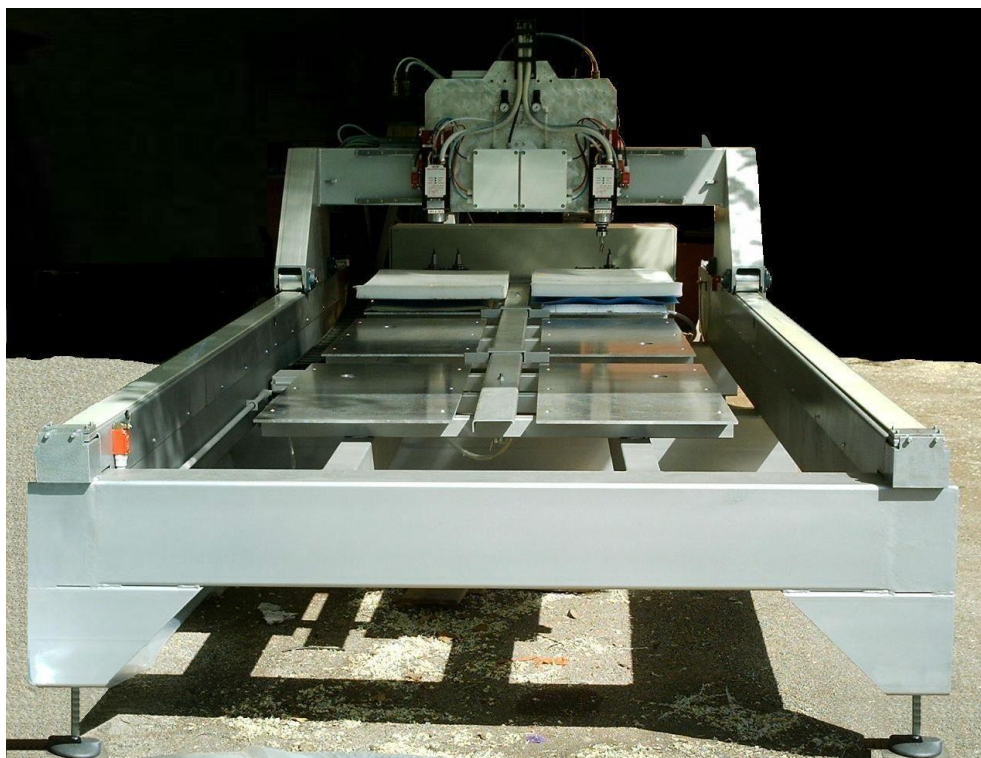
1.2. N.1 complete system for positioning and holding the blanks to be shaped comprehensive of:

- n. 2 to 6 supports for the blank to be shaped in aluminum core with 20mm MDF wood plate, each equipped with vacuum suction system.

Using a cutting tool with 20 mm diameter, the system allows the positioning and shaping of blanks with the following maximum dimensions:

- Length 1400 mm ;
 - Width 690 mm ;
 - Height 200 mm .
- front and side parallel removable reference. They are used so to realize a mechanical block to position the blanks always in same place on the holding benches with refer to the x symmetrical axis of the blank; Once the vacuum is on and the suckers are tightening the blanks, the blocks are automatically removed by means of pneumatic cylinders so to allow the complete shaping of the blanks. When the shaping is over the block are automatically re-positioned at their place;
 - n. 1 to 3 dry type vacuum pump, complete with manometer and pressure limit switch;
 - n. 1 to 3 independent pneumatic plant for vacuum from pump to blank support plate;
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PHOTOS OF DETAILS

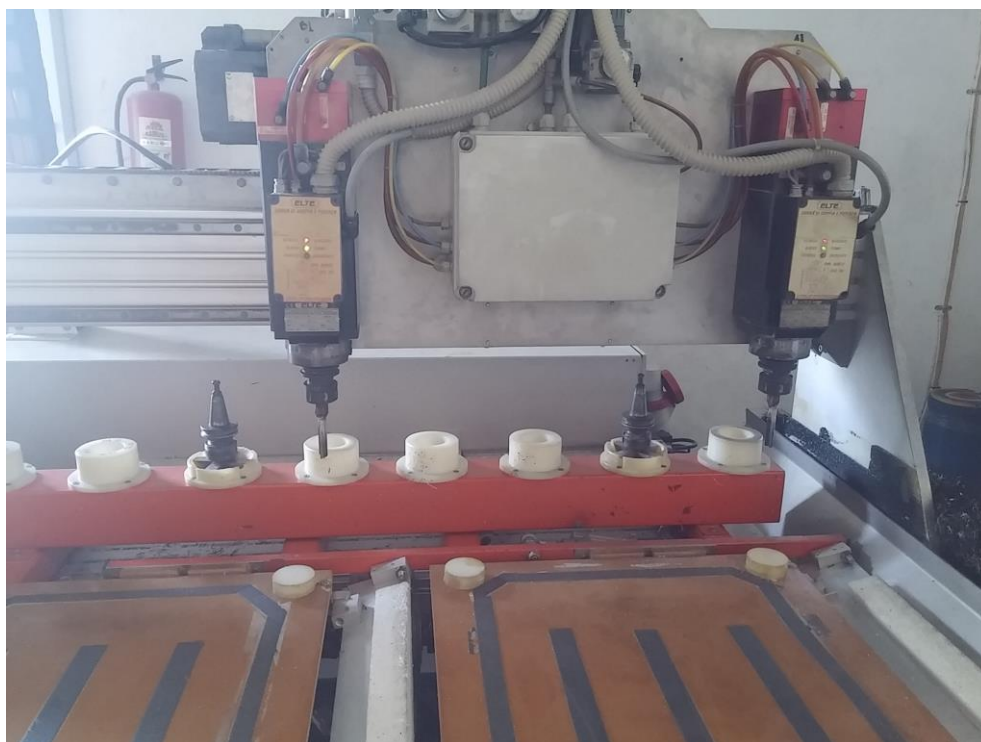


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DI MASSIMO MORINI E C.

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