

## **TECHNICAL DESCRIPTION OF**

**HI SPEED 5D-SHAPER MACHINE WITH 5 AXIS CNC CONTROL WITH  
GANTRY ON Y AXIS FOR FOAM SHAPING, WITH AUTOMATIC TOOL-CHANGE AND  
HOT-WIRE CUTTING SYSTEM, OPTIMIZED FOR THE PRODUCTION OF MODELS  
AND VARIOUS SHAPES UP TO 7000 x 4000 x 1400 mm**



## 1. DESCRIPTION OF MACHINE

N.1 vertical milling machine with 5 interpolated axis with CNC control, Cartesian type, along the 3 axis X, Y, Z, with Gantry system on Y axis and 2 Rotations around vertical and horizontal axis, as described as follow:

- linear positioning precision:	0.5 mm/1000mm;
- linear direction precision:	0.5 mm/1000mm;
- repeatable position precision:	+/- 0.5 mm;
- rotation positioning precision:	<= 5 arcmin
- X axis working length:	up to 7000 mm;
- Y axis total working length:	up to 4000 mm;
- Z axis working length:	up to 1400 mm;
- Rz vertical rotation	360 °;
- Rx horizontal rotation	270 °;
- combined total linear precision:	0.5 +/- 0.5 mm;
- working speed:	0.01 – 100 cm/s;
- power supply:	380 Vac 3 phase, 50/60Hz 50/60Hz
- Installed power:	18.0 kW

comprehensive of:

- n.1 main frame realized in carbon steel , with overall dimensions up to 9000(L) x 5200(W) x 4600(H) mm, provided with n.14 levelling metallic screws;
- n.1 couple of guides for movement along X axis, realized by means of rectified rails with ball bearing cars with maximum run from 5000 to 7000 mm. The power train is realized by means of motor-reducer, pinion gear and rack;
- n.1 couple of guides for movement along Y axis, realized by means of rectified rails with ball bearing cars with maximum from 3000 to 4000 mm. The power train is realized by means of a Gantry System with 2 motor-reducers, pinion gears and racks or under request by means of rectified ball bearing worm screws;
- n.1 couple of guides for movement along Z axis, realized by means of rectified rails with ball bearing cars with maximum run from 1000 to 1400 mm. The power train is realized by means of motor-reducer, pinion gear and rack;
- n.1 geared bearing for 360° rotation RZ around Z axis, realized by means of high-precision motor-reducer, pinion gear and driven gear on bearings;

- n.1 horizontal shaft for 270° rotation RX around X /Y horizontal axis, realized by means of high-precision motor-reducer, belt pinion gear and driven gear on bearings;
  - n.1 shaping head constituted of a 13.0 kW spindle motor with automatic tool change, speed from 12.000 to 18.000 rpm, 25 mm shaft tool support, n.6 support place, n.6 HSK F63 cones for cutters, complete with ER 40 clamp plugs with diameters to be defined in function of cutters; Spindle will be complete with dust vacuum with 2200 W power and 15 meter vacuum hose;
  - n.1 tools deposit for n.6 HSK F63 cones;
  - n.1 hot-wire system deposit;
  - n.6 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 electrical board comprehensive of complete electrical equipment installed on the machine;
  - n.1 5 axis CNC control, predisposed for the execution of external programs in ISO language ( G-CODE ) and creation of proper own working sequences independently from external programs;
  - n.1 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;
  - 1.2. N.1 wooden table for positioning and holding the materials to be shaped with dimension 7000 x 4400 mm. Maximum vertical clearance between tool cone (without cutter) and wooden table close to 1500 mm.
  - 1.3. N.1 Hot wire foam cutting device working along X, Y and Z axis with maximum width 1100 mm and maximum depth 430 mm. Vertical run 1000 mm.
-

## PHOTOS OF DETAILS



**3EMMEGI S.A.S.**

DI MASSIMO MORINI E C.

SETTORE

ROBOTICA RICERCA SPERIMENTALE  
AUTOMAZIONE MACCHINE SPECIALI



**3EMMEGI S.A.S.**

DI MASSIMO MORINI E C.

SETTORE

ROBOTICA RICERCA SPERIMENTALE  
AUTOMAZIONE MACCHINE SPECIALI





# 3EMMEGI S.A.S.

DI MASSIMO MORINI E C.

SETTORE

ROBOTICA RICERCA SPERIMENTALE  
AUTOMAZIONE MACCHINE SPECIALI

