BAVELLONI NRG 250

System description and benefits

General

NRG 250 – 3 is a high-technology machine designed to carry out even complex and high-quality processing in reduced times, containing the necessary investment to the minimum.
The totally "digital" operation and control system of the machine enables a dynamic prompt response of the axes and a precise check of the speed: this means high performances always realized with the greatest accuracy and quality of the workings.

Especially fit for productions for home furnishing it is arranged for the following kinds of processing
- Drilling
- Milling
- Inside/outside edging
- Writing by candle tool in all styles of WINDOWS
- Geometric and artistic engraving by diamond candle tools

Structure

The machine has an open-top structure, to facilitate loading and unloading operations, and mobile bridge on the Y axis, made of electro-welded and normalized steel. It consists of 3 linear axes X, Y e Z, and the transmission is by means of hardened and ground screws with re-circulating balls.
The X, Y and Z axes run on prismatic guides with re-circulating balls.
The bridge is moved by two motors Y and Y' in "Gantry axis": a motor, a screw and a prismatic guide both with ball screws are on each side.
All moving organs are equipped with a centralized lubrication system.
The protection fence fully surrounding the machine is provided with a convenient entrance in the front side, to make loading/unloading operations easier.

Working plane size 2500x1200 mm

The working plane, equipped with 2 working stations with air/vacuum controls, is in ground Duralumin.
Thanks to the hollows of the working plane structure, the suction cups fixing can be mechanical or by vacuum.
The **centring devices** have a PATENTED retractable system allowing using stack wheels, reducing the number of tool changes. Moreover, the control system of the centring device prevents from chipping the piece during its rise/descent.

Tool store (optional)

NRG 250-3 can be equipped with a **10 position - tool store**: since on each cone you can put two wheels or more (up to a 65 mm stack), this tool-store can contain more than 18 different wheels.

Moreover, the machine can be equipped with an automatic pre-setting device (optional), with very small dimensions, designed to operate both the vertical and the horizontal measuring.

Spindle

NRG250 – 3 is equipped with a "new conception" electro-spindle with air cooling:

- constant power of 5,5 kW
- vector check of the revolution from 0 to 11000 revs
- fast release clamping device for ISO 30 tools with mechanical blocking system and by pneumatic piston
- internal automatic cleaning of spindle (cone housing) by compressed air
- double cooling system of tools:
  - directly from the inside of the tool by clean water
  - external by re-cycled self-filtered water through sprayers gathering the tool

Control console

The control console combines the might of a professional numerical control with the convenience of a PC working in Windows® (Microsoft) environment.
The main features of the system are:

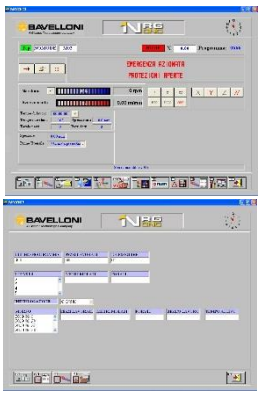
- Programming on board the machine, while the control is managing the movements of the machine, the operator can easily work on the PC
- Simple and direct graphic interface
- USB port and CD-Rom for data storage and transmission
- Keyboard and mouse
- Possibility to network with other PCs
- Modem connection possibility to use assistance on line.
- Graphic and colour display

Totally digital control of axes

The digital technology in use on CNC working centres of Bavelloni enables the axes control through the CN without any "digital – anagogic – digital" conversion of the signals. It means no electromagnetic interferences, higher transmission speed and more accurate control by the motors permitting a better and faster interpolation of the axes.

Easycnc software

Created internally by our programmers Easycnc is the managing software of the working centre.

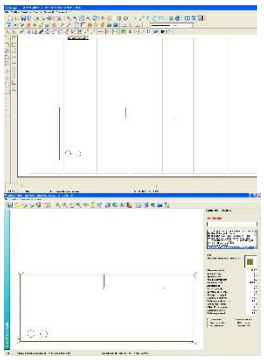


The main functions are:

- Visual check of polishing wheels use
- Visual check of spindle speed
- Display of spindle absorption
- Display of partial and total working times
- Graphic display of tool path
- Storage of 254 tools and respective operations
- Display of diagnostics with language messages
- Inputs/outputs diagnostics with language comments and utility
- CAD/CAM programs execution in concealed time while the machine is working
- Access to the machine production statistics
- System for the tool wear compensation (fixed value or by constant pressure)

- Guided and easy access to the machine parameters

Software CAD-CAM



The standard CAD package is developed in WINDOWS, it is easy to learn and to use. It is equipped with innumerable functions allowing drawing and preparing work programs in few minutes.
Shapes can be both drawn in the CAD or detected on the machine trough self-learning probe or imported from other CAD systems (such as Autocad with .DXF format).

Some of its main features are:

- TOOLTIP function (display of key function by hovering over the mouse cursor)
- Library of parametric shapes
- Library of doors and metallic fittings
- Possibility of customization by the operator
- Automatic check of working feasibility
- Estimated calculation of production time and costs, considering costs in linear meters, amortization and other fixed company costs.
- Software for suction cups positioning on the working plane
- Software for tool path optimization
- Software for self-learning of shapes
- Software for management mill oscillating movement (triangular –step-linear)
- Software for multi-function tool management (drilling - counter-sinking - grinding)
- Software for automatic working speed reduction and pressure increase on radiuses
- Wear recover of polishing tools

Electrical plant

Electric installation is carried out in accordance with CE rules with power panel included in the structure of the machine and provided with fan cooling system. All axes motors are brushless Standard voltage 400/50 Hz, other available upon request.

Hydraulic plant

As options there is the availability of a stainless steel tank (capacity 800 l) with relevant pump or of a centralized plant management kit for the recirculation of the cooling water.

N.B. since tool cooling is by water, one of the above possibilities must always be present.
In case you want to realize and use your own tank, you have to require the constructional drawings.

Training program (included in the price of installation)

The training to the customer will be exclusively in the following way:

1) Explanation of drilling operation
2) Explanation of milling operation

3) Explanation of edging operation of a shape (symmetrical wheels type F.E. – P.E. – V) having a thickness - by choice - among the ones purchased by the customer. (For instance PE 8 mm)

Any other additional explanation has to be considered as a special request, to be quoted separately by our Service Department.

Technical specifications

Total machine overall dimensions	see lay-out
Working plane height with suction cups	950 mm
Weight	3700 kg
X axis stroke	2800 mm
Y axis stroke	1345 mm
Z axis stroke	130 mm
Axes speed	65 m/min.
Spindle speed	11.000 RPM
Spindle power (S1)	5.5 kW (7.5 HP)
Max. workable dimensions with tool ∅120	2500x1200 mm
Workable thickness	3 ÷ 19 mm
Total installed power	23 kW
Absorbed power	15 kW
Tool diameter	Ø8÷Ø120 mm
Store positions (optional)	10 (optional)
Compressed air pressure	4 bar
Compressed air consumption	60 Nl/min continuous 300 Nl/min peak
Min. pressure of clean water system	2.5 bar
Storage environment conditions (temperature/humidity)	From -20°C to +60°C - max 80% without condensate
Operational environment conditions (temperature/humidity)	From +5°C to +45°C - max 80% without condensate

Standard supply

2,00	Cone ISO-30 for mill/drilling tool - internal water
6,00	Cone ISO-30 for tool L.45 - internal water
2,00	Cone ISO-30 for tool L.20 - internal water
4,00	Suction cup diameter 160 mm double-vacuum blocking
6,00	Suction cup diameter 90 mm vacuum blocking
2,00	Oval suction cup 100x36 mm vacuum blocking
2,00	Device to work strips min.50 mm
6,00	Centering device diameter 90 mm / H.125 mm
3,00	Centering device diameter 40 mm vacuum blocking
1,00	Core-drill diameter 30 mm
1,00	Cutting diamond mill
1,00	Diamond mill to countersink
1,00	Maintenance tool and wrenches kit