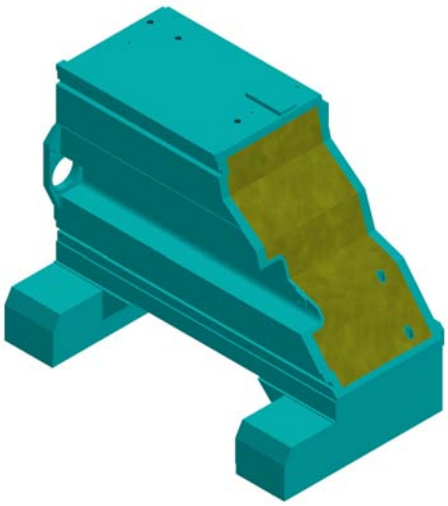
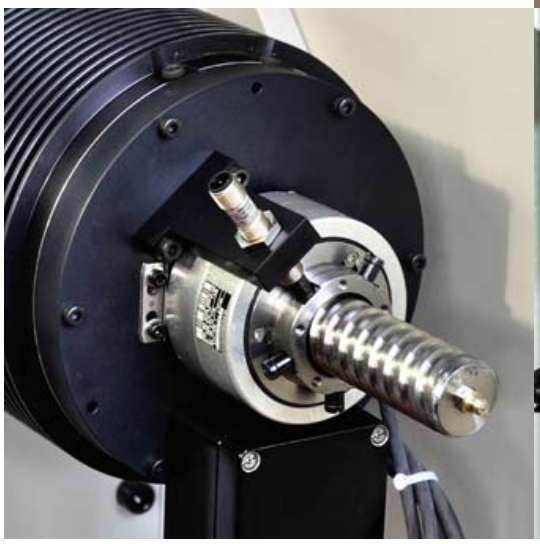
MACHINING CENTER EC43 3 Axes





Meccaniche Arrigo Pecchioli
Via di Scandicci 221 - 50143 Firenze (Italy) - Tel. (+39) 055 70 07 1 - Fax (+39) 055 700 623
e-mail: pear@pear.it - www.pear.it

Other versions of this model of machine

EC43 3 axes with pallet loader
EC43 3 axes for electrodes
EC43 3 axes for buckles
EC43 5 axes with pallet loader

Other files available for additional information regarding this machine

Spindle Hsk32
Probe for Hks32
Spindle Hsk40
Control Desk
Z32 NC
Software Peace

Fields of Application

Is a conventional three-axis machine and is used in the execution of the following processes:

- Construction of moulds even if direct machining is required of hardened steel.

- All the work of classic engraving of high quality. Our integrated software on the machine Peace (sold separately) can greatly simplify and speed up all operations.

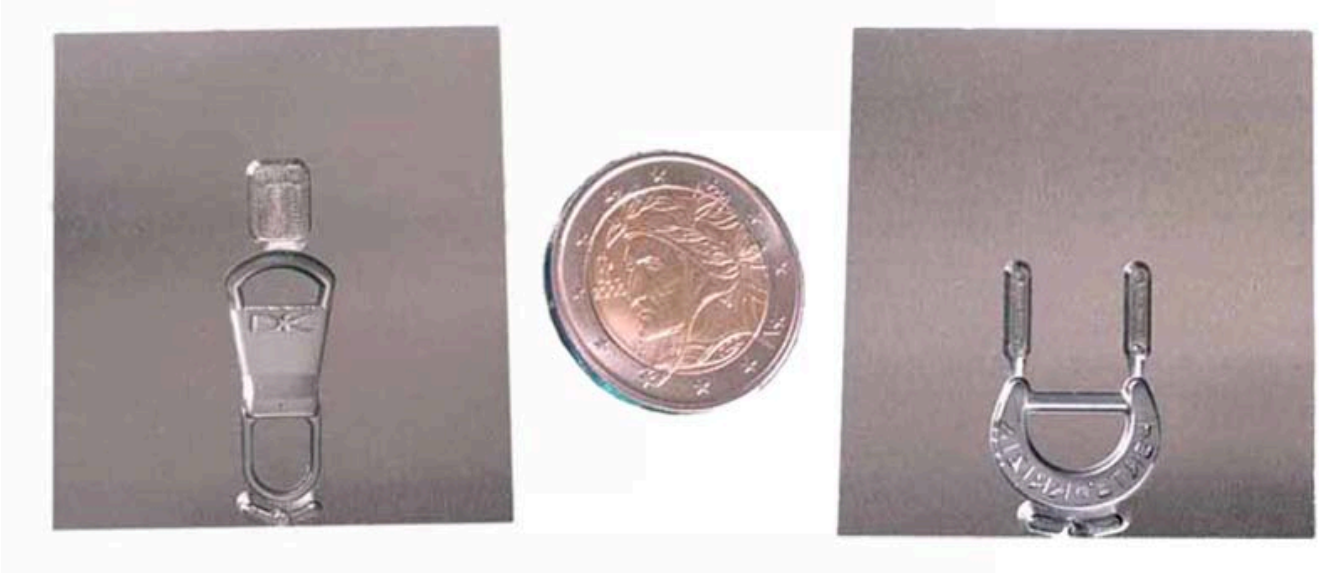
- Execution of micro milling machining where it is required a degree of finish, accuracy and thermal stability (lack of thermal drift due to heating of the spindle) particularly high.

In the photo gallery are some photos of examples of work that have been performed with this machine.

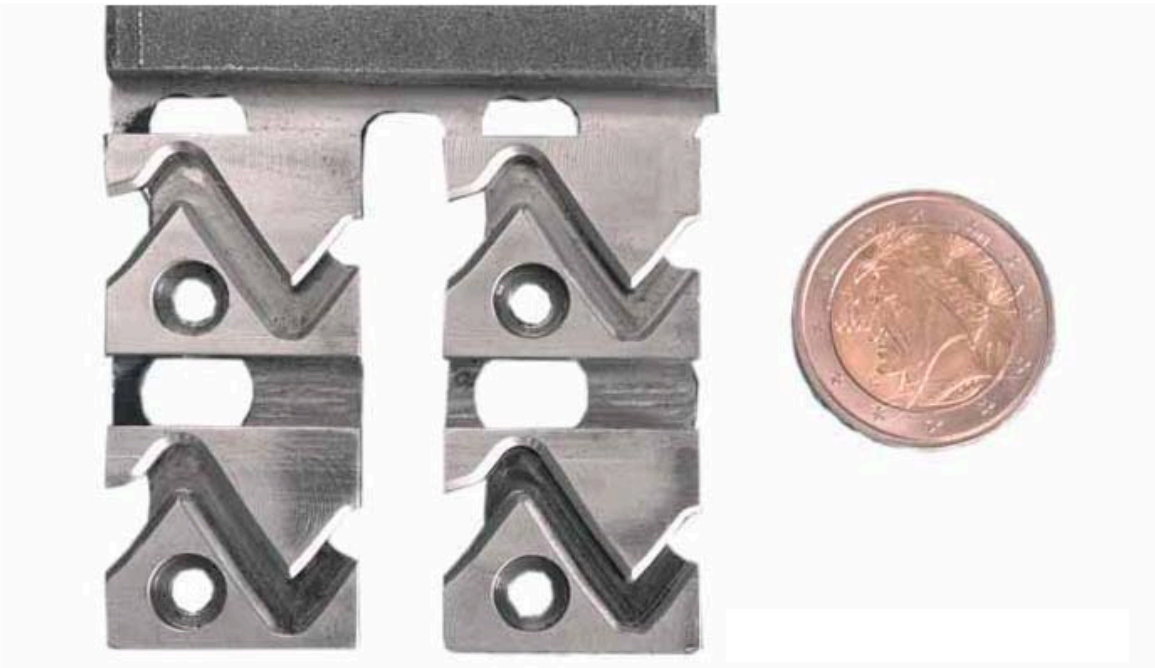
Electrode for molds for buttons

Fields of Application

Mold made of hardened steel for puller



Cams for knitting machine



Structure

Being all three movements on the head, the work plan is flange vertically on the base, thus ensuring a great overall stiffness.

Even chip evacuation is greatly facilitated and does not go to minimally interfere with the protections both axis X and Y that are located in a raised position with respect to the working area.

Excellent is also the visibility of the working area by the user as the gateway to the workspace is positioned a few inches from the end of the work area.

Ball bearing screw characteristics and translation axes guides

- X and Y axis diameter: 32 mm
- Z axis diameter: 25 mm
- Screw pitch X Y: 20 mm per revolution
- Screw pitch Z: 10 mm per revolution
- Material: hardened and ground steel with ceramic material nut balls
- Dimensions roller block size X Z axis: size 25
- Dimensions roller block size Y axis: size 35

Position transducer axes

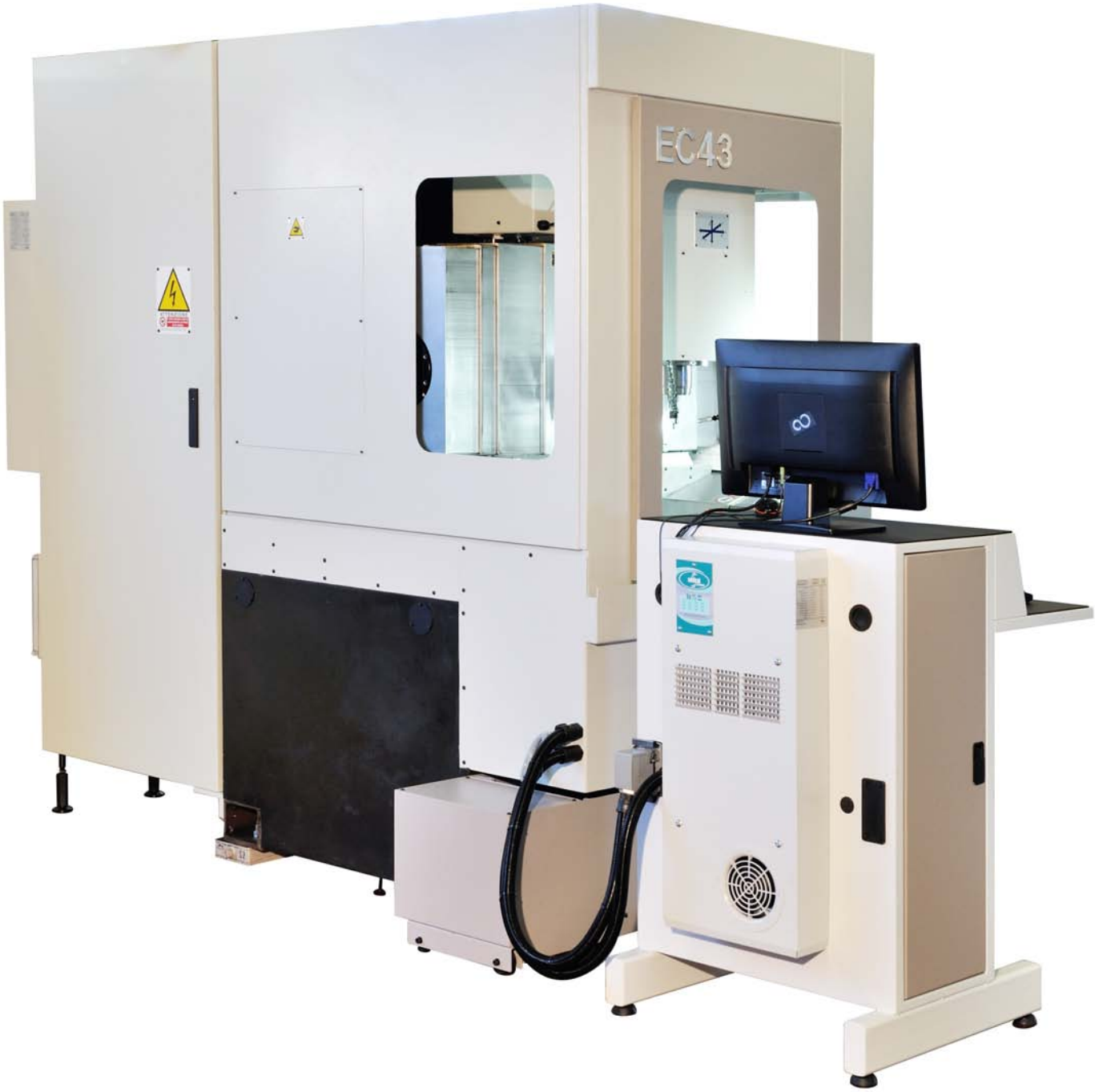
Standard: incremental encoders on the screws.
On option: absolute optical scales.

Structure

Front view of the machine from the operator side

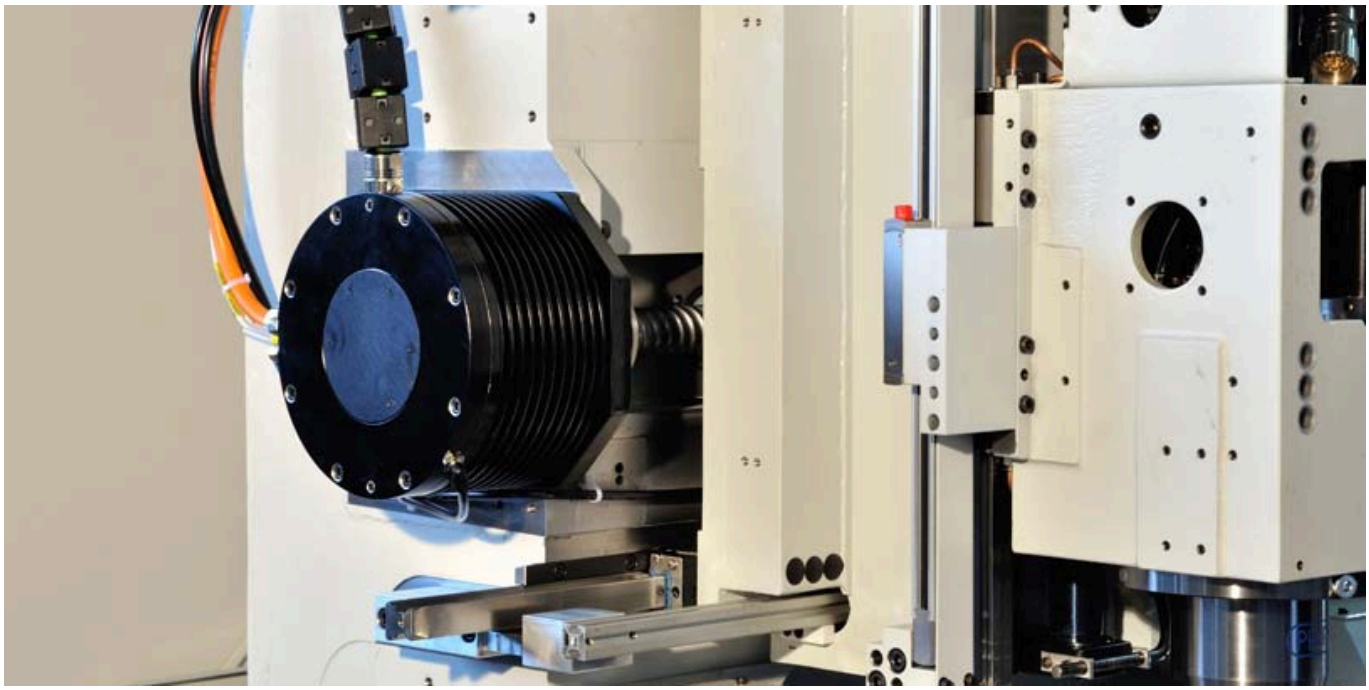
Structure

Front view from the opposite side of the machine operator



Structure

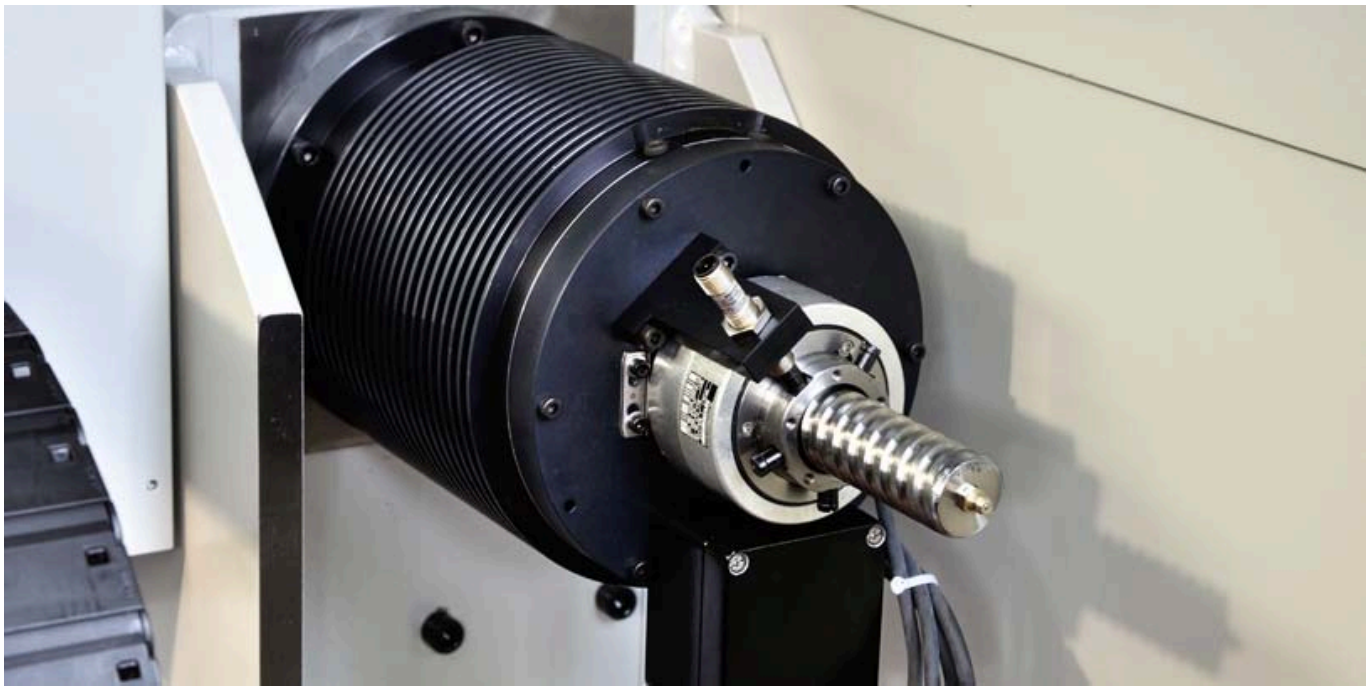
X-Axis Motor - Absolute Encoder Z-Axis (On request)
It is directly coupled to the rotating screw to obtain a better level of finish



Structure

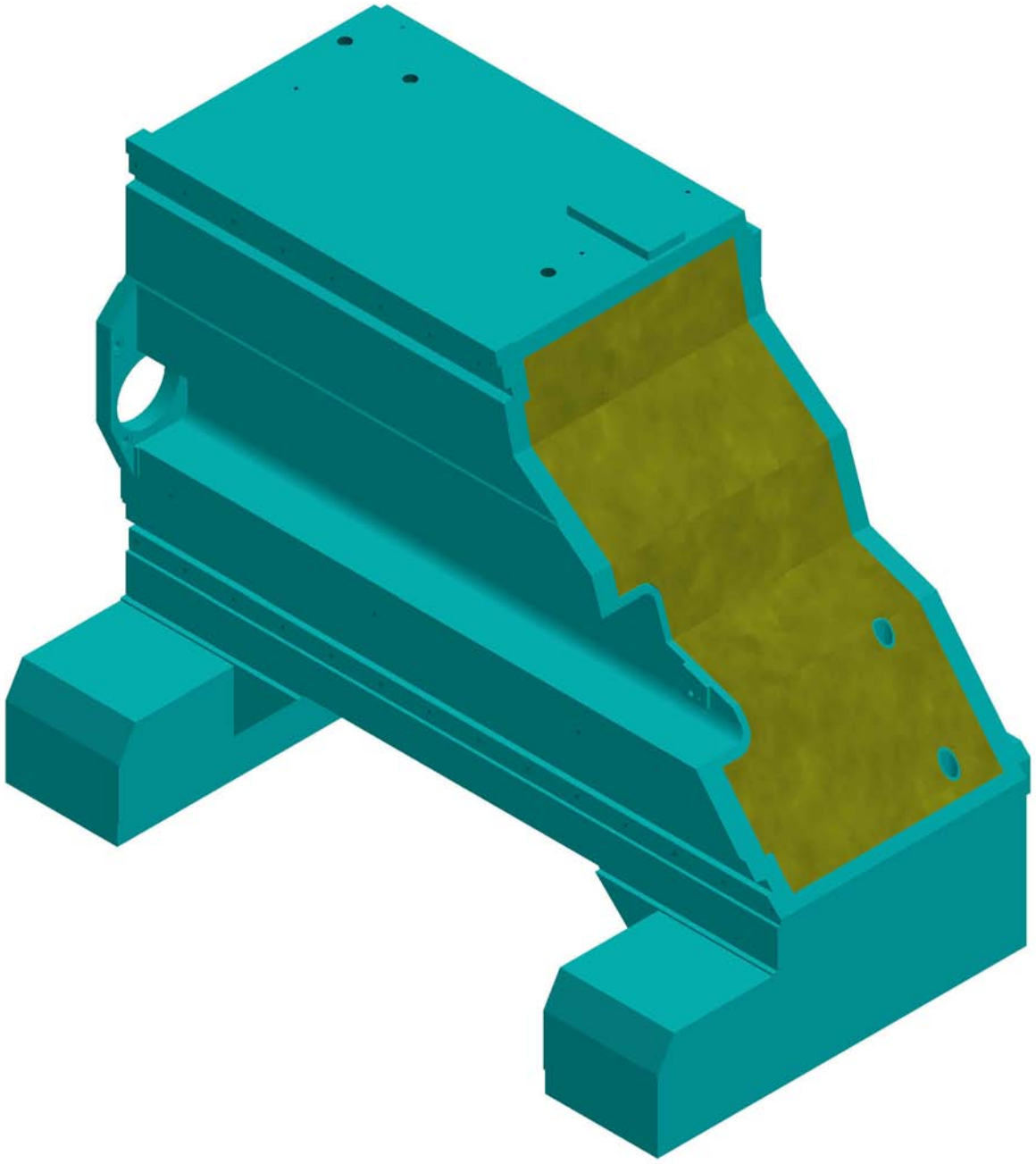
Y-Axis Motor

To note the fact that the screw is stopped as it is the nut that is made to rotate



Structure

Moving crosshead filled with polymeric material having a low density
Allows to dampen the vibration generated by the milling up to 1/10 compared to a structure without filling



Tool Changer

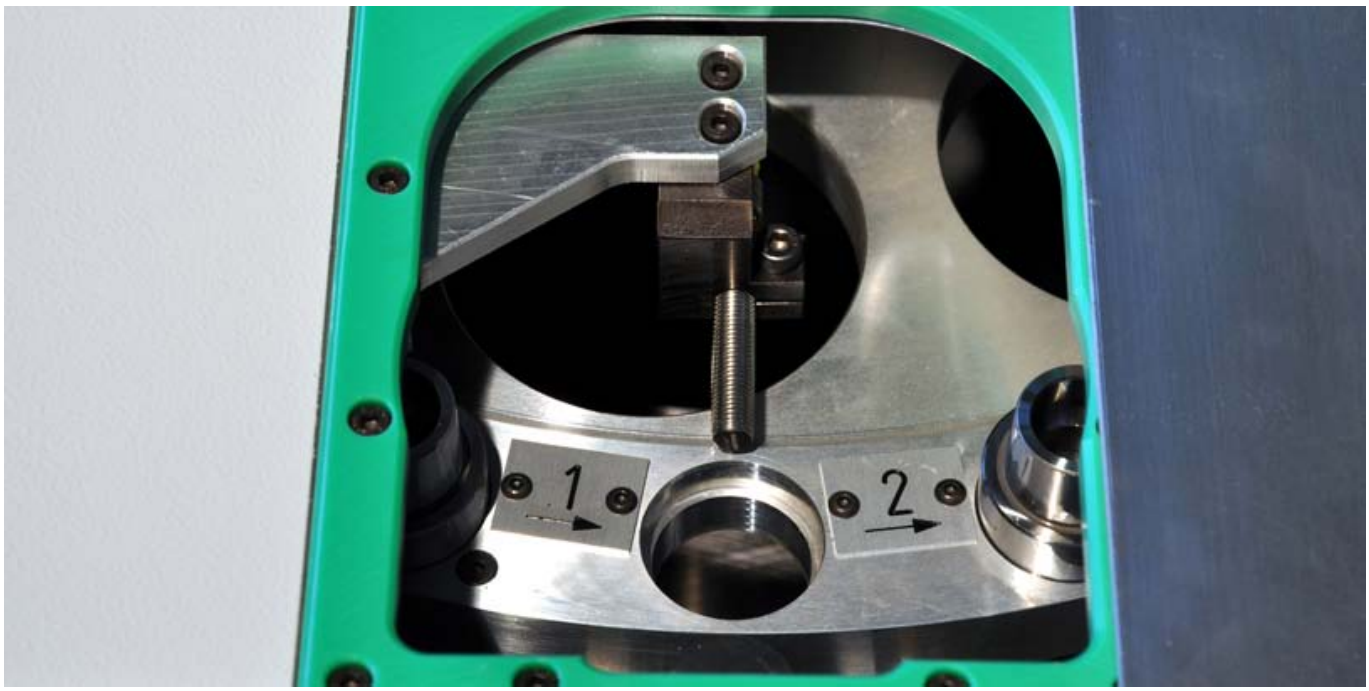
In this configuration of the machine are available:

- Two types of tool changes positioned inside the machine. A simple rack 6-position, and a rotating comprehensive deposit of oil taps. Both are supplied complete with preset tool length and are enclosed inside a special protective casing for automatic opening/closing.

- A type of tool changer positioned outside the machine and made according to the diagram of a robot “pick & place”. In this case the stroke of axis Y initially intended to pick up / deposit the tool is provided to the work area, and then the useful stroke axis relative passes from 300 to 400 mm. The installation of the external tool change increases the overall dimensions of the machine width of about 800 mm. Is an increase more nominal than real as such area should be left available anyway in part for the control pulpit and in part to allow opening of the door of the electric cabinet.

Internal Rotating Tool Charger

Note the presence of the safety switch to prevent tools to be mounted on already occupied position



Tool Changer

External Tool Charger

The preparation of the tool change is performed in masked time while the machine is working

Specifications

Overall dimensions	1,080x3,000x2,130 mm
Net working travels	X=400, Y=300, Z=300 mm
Maximum workpiece thickness under the bridge	200 mm
Polymeric Granite Base	
Preset tool length standard accessory	
Total weight	3,100 kg

AXES	
Working speed	from 0 to 30,000 mm per min
Rapid traverse rate	30 meters per min
Maximum thrust on each axis	500 N
Acceleration on three axes	10,000 mm per sec^2 (1G)
Positioning precision (VDI 3441)	±0.015 mm
Repeatability accuracy (VDI 3441)	±0.005 mm
Positioning precision with optical scales (VDI 3441)	±0.008 mm
Repeatability accuracy with optical scales (VDI 3441)	±0.001 mm

WORKING TABLE	
Dimensions	450x400 mm
Threaded holes clamping pieces	M8x16
Total number of holes	72
Distance between holes	50x50 mm

SPINDLE	Hsk32	Hsk40
Maximum distance from maximum thickness piece to attack tool holder	190 mm	190 mm
Minimum distance between the work plan and attack tool holder	90 mm	90 mm
Minimum distance between the work plan and the standard tool nut	25 mm	10 mm
Tool holder DIN 69893	Hsk32/E	Hsk40/E
Maximum RPM	30,000/40,000	32,000
Spindle power continuous duty (S1)	5 Kw	12 Kw
Max torque spindle	4.1 Nm	9.3 Nm
Rigid tapping standard		

Specifications

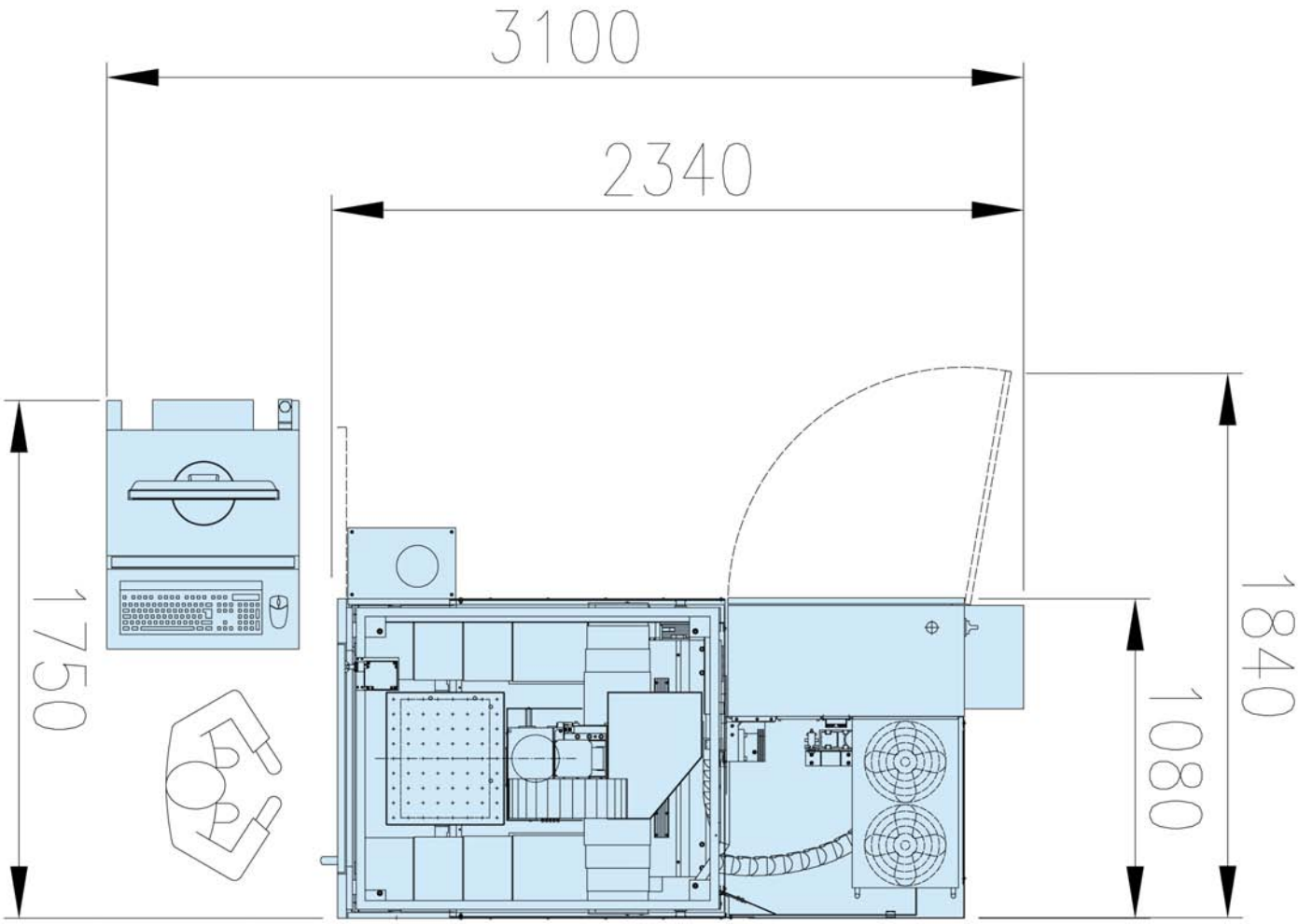
TOOL CHARGER	Hsk32	Hsk40
Number of tools available	6/22/48	18/40
Maximum tool Ø	28 mm	34 mm
Max tool locked with standard collect Ø	10 mm	16 mm
Max tool locked with special collect Ø	13 mm	-
Tool change time chip to chip average	9 sec	9 sec
Time to swap tools	3 sec	3 sec

MAIN OPTIONS

- Absolute encoder position made with optical scales
- Electric spindle with 40,000 rpm
- Upper closure encasing
- Continuous dividing head model DC12 manually tilting
- Tracing head DIGIT2
- Software Peace integrated on the machine to simplify programming to the maximum
- Vacuum Pump
- Coolant system
- Air blow on the tool
- Minimal quantity lubrication of the tool

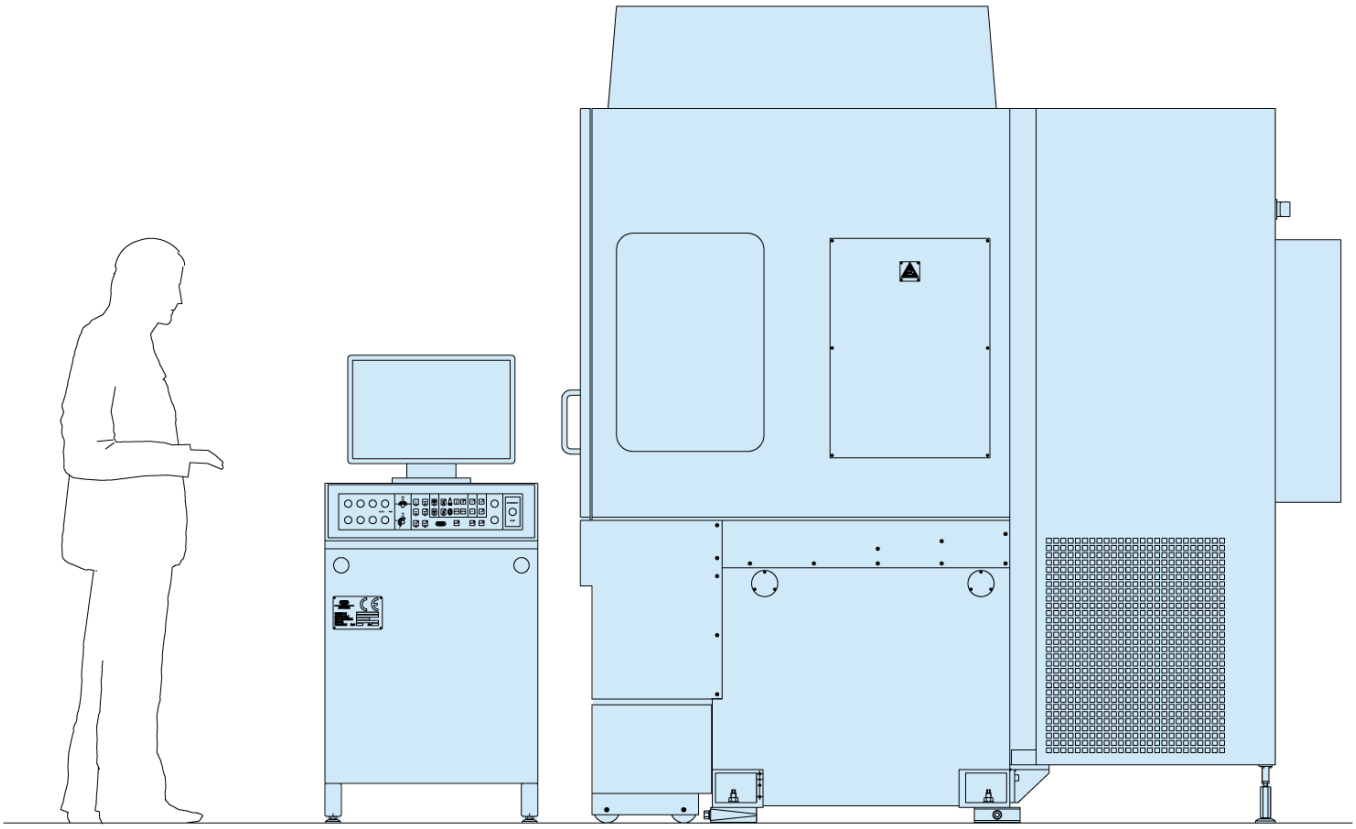
Specifications

Plan view



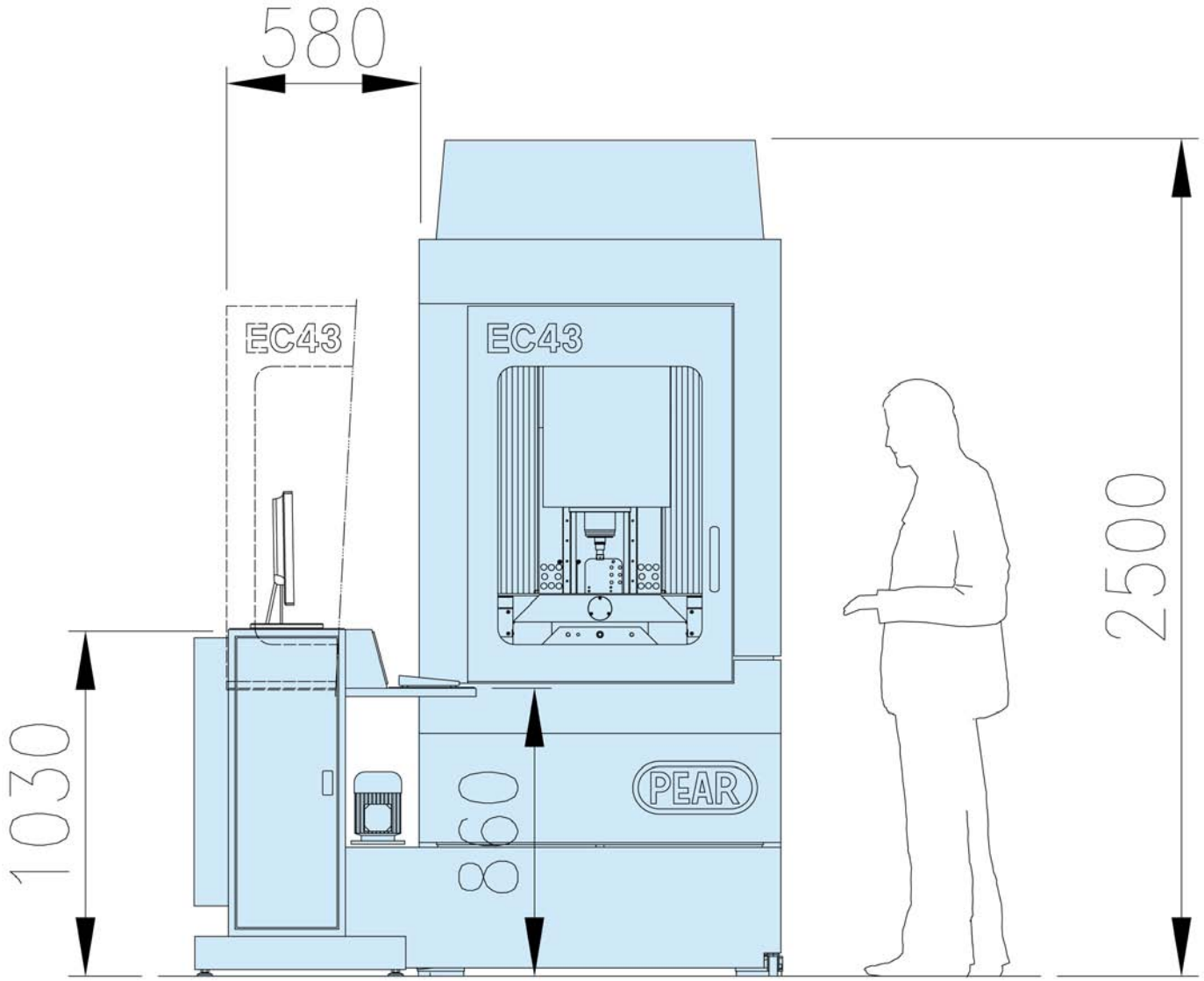
Specifications

Lateral view



Specifications

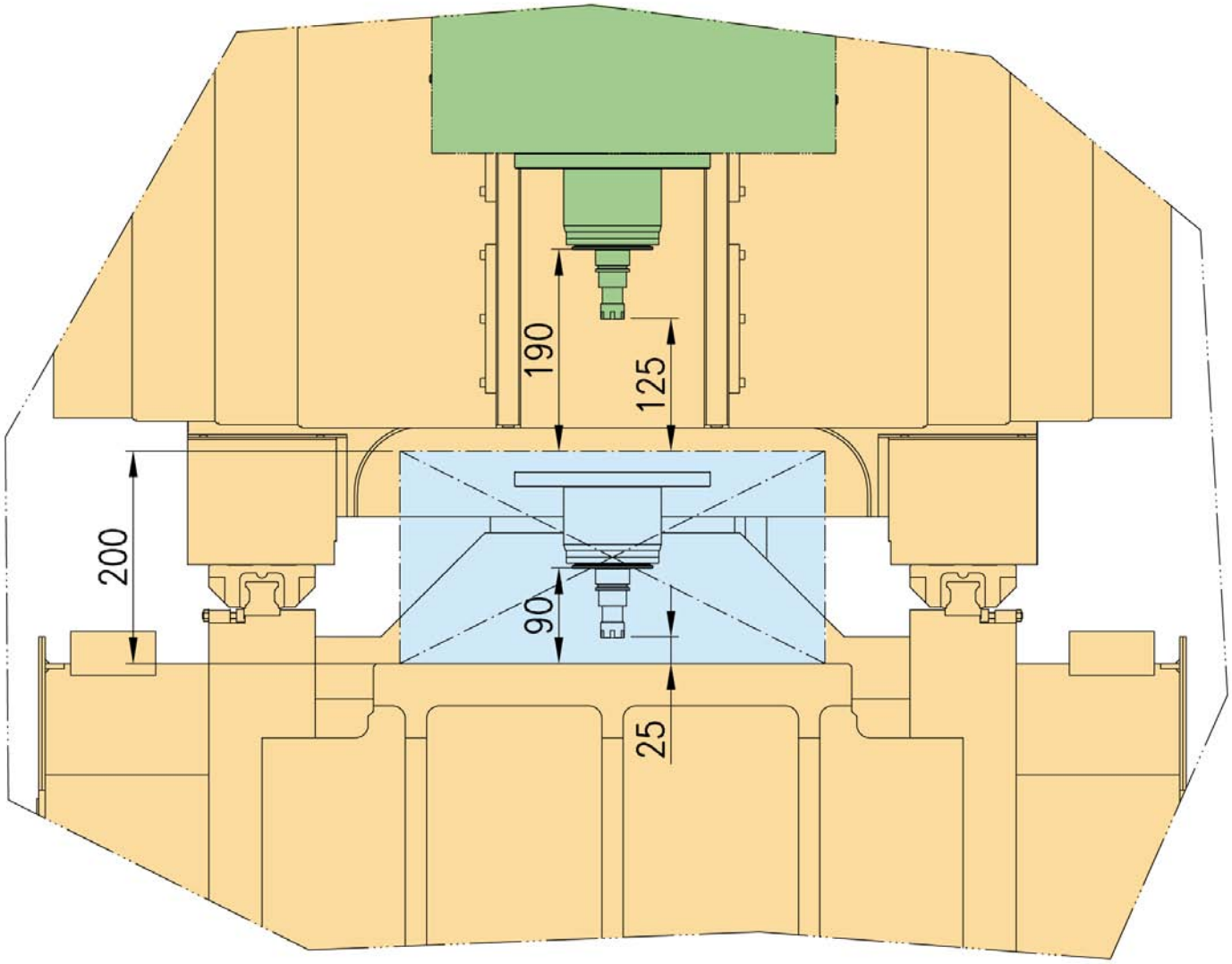
Front view. The width of the machine alone is contained in only 1,100 mm!



Specifications

EC43 3-Axes with the Spindle Mounted Model Hsk32

This drawing shows the maximum thickness of the work piece and the various lengths max and minimum of the tool



Minimal Quantity Lubrication of the Tool

Optional accessory that can also be purchased even at a later time of purchase

Meccaniche Arrigo Pecchioli
Via di Scandicci 221 - 50143 Firenze (Italy) - Tel. (+39) 055 70 07 1 - Fax (+39) 055 700 623
e-mail: pear@pear.it - www.pear.it

Updated 28.11.2013 - Specifications subject to change without notice
Name of the file in .PDF format used to print: EC43_3axes_en_131128.pdf