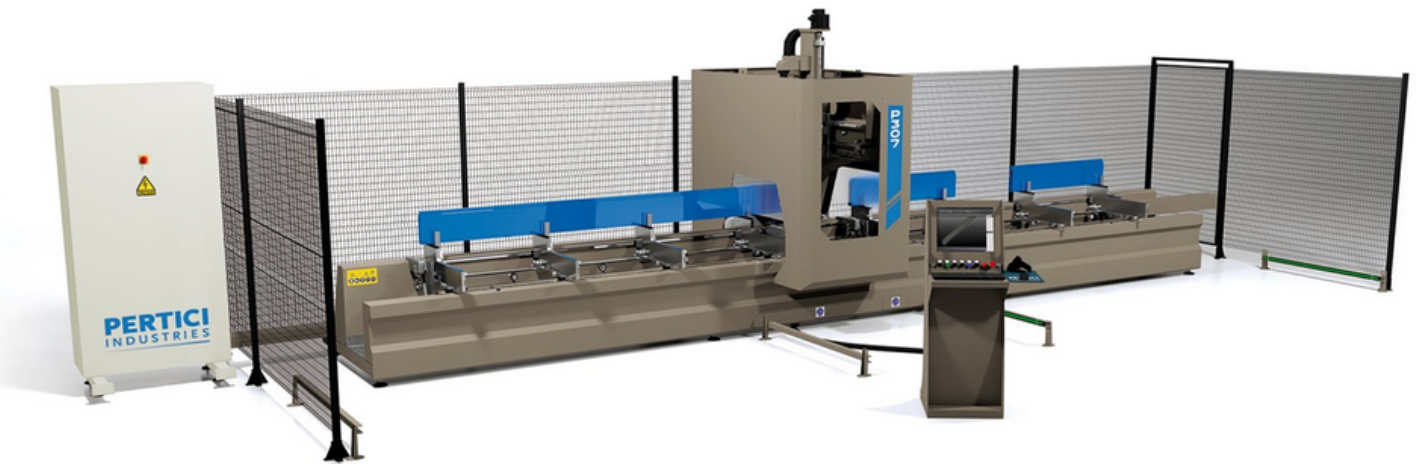


MACHINING CENTRE P527

CNC with 5 controlled axis



General description

CNC machining center with 5 controlled axis, designed to execute the operations of milling, drilling, threading, cutting, and milling on bars or pieces of aluminum, Pvc, light alloys and steel. The 7mt version allows to work in one only working area or in pendular mode with two independent working areas. The electric spindle with 8kw power in S1 with HSK-F63 cone connection, enables to also perform difficult operations common in the industrial field. In all versions the electric spindle continuously rotates along the A axis from 0° to 180° and C+/- 320° being able to work in every position included in this range. The machining center has a rotating 10 position (16 positions as an option) magazine house on board the carriage with the possibility to store standard cutters and end milling disks.

Main structures

All main structures of the machine, basement, carriage, slide, are made in electro-welded steel and accurately processed by a tool machine in order to obtain good geometric and shape tolerances. All parts made of steel are then treated by a special polyurethane bicomponent at high thickness varnish treatment that guarantees a long life against corrosion.

Main components

In the machining center there are high quality components mainly summarized in 5 parts:

- 5 axis head
- Motorization
- Axis transmission
- Cables
- Pneumatic

The 5 axis head integrates 2 rotating axis plus the electric spindle unit that dispose of a 11kw at 24.000 rpm in S1 service, the cone connection is of HSK-F63 type. The unit is cooled down by liquid to guarantee thermal stability in case of demanding operations. A specific lubrication nozzle guarantees a good supply of lubricant to the tool during the working process. The unit disposes of a 450mm blade positioned in a specific tool magazine to execute cuts and notching on aluminum profiles.

The motorizations mounted on the machine are of brushless type with permanent magnets. This type of motors with frequency variation offer the best compromise to execute precision and repeatability machining operations. Thank to the digital protocol of communication with its own driver and incremental encoder with high resolution the system results highly performing and highly precise.

The transmission of the axes on the machine is divided into two types. The X axis is driven by a rack and pinion system, both components are of the highest quality being machined and then ground on both the planes and the tooth. The system adopted for this transmission is a helical toothing system that allows you to always have a tooth in grip between the pinion and rack. This type of system also guarantees smoother positioning and quieter operation. The Y and Z axes are driven by a screw + ball nut system of the rolled type. This system is characterized by high dynamic load capacity and excellent quality and positioning accuracy. The diameter of the screw is 25mm with 4 internal recircles.

All the transmission cables present on the machine are of the high handling type, specifically designed to be placed inside catenaries. All connections are certified and isolated from interferences. The power cables are sized according to the type of motors and all cables are insulated with internal grounding cable.

The pneumatics used on the machining center are of the highest quality. The cylinders used are of the double acting type and follow the ISO 15552 standard. The solenoid valves are type 5/2, low voltage at 24Vdc. At the inlet of the system there is a filter-regulating group that calibrates the right inlet pressure and filters the inlet air, eliminating impurities and water particles present in the system.

Clamps

The clamp unit has a large dimension, is robust and compact and is able to guarantee the correct clamping of big dimension profiles. With a simple manual movement it's possible to rapidly adjust the moveable stop to the different types of profiles, making easy the changing of shape. On the basic version the clamps are hooked by the spindle and positioned along the X axis in the position indicated by the CNC. In the "I" version a specific numerical control axis moves the clamps in an automatic and independent mode that positions the clamps in masked time. The positions are always controlled by the CAD-CAM, this means that the movement time is reduced, the positioning is accurate with zero mistakes due to the manual intervention.

Rotating 16 positions tool magazine

The tool magazine is located on the rear side of the mobile carriage. Its capacity is 16 tools in the standard version. Thanks to its position and rotary movement, the tool change operation takes place in a few seconds, thus optimising the time of the entire work cycle. Disc milling cutters with a maximum diameter of 180 mm can be inserted in the tool magazine.

Zero stops

The zero stops define the 4000, 7000, 9000 mm working range of the machine and provide the "X" profile reference. The machine is equipped with two stops, one on the left and one on the right. The stops are activated by a pneumatic cylinder that moves the stop outwards, completely freeing up the work area for any end milling and cutting operations. When processing the entire bar in cut-and-separate mode, the working capacity is reduced to 3200, 6200 and 8200 mm respectively to allow workpiece handling.

Control unit

The control unit is located on the front part of the machine, and consists of a metal frame with pivoting wheels for easy positioning. It houses a fanless industrial PC with Ethernet communication protocol, 19" monitor, standard keyboard and mouse. In the control unit there are all the Man-Machine dialogue commands, then Run, Start and Stop buttons, Reset alarms, axis speed potentiometer and USB port.

Electric panel

The electrical panel is located on the left side of the machine, it is made up of a metal frame and inside there are all the electrical components that make the machine work. Specifically, we find axis drive, inverter, electronic control and all the electromechanical components of operation. The main power circuit is powered at 400VAC, while the auxiliary circuit is powered at 24VDC. All components are CE compliant and comply with the most strict directives in terms of electromagnetic compatibility. On the door of the panel there is the door lock switch for switching the machine on and off and the fans that, combined with a thermostat located inside the panel, maintain the right temperature.

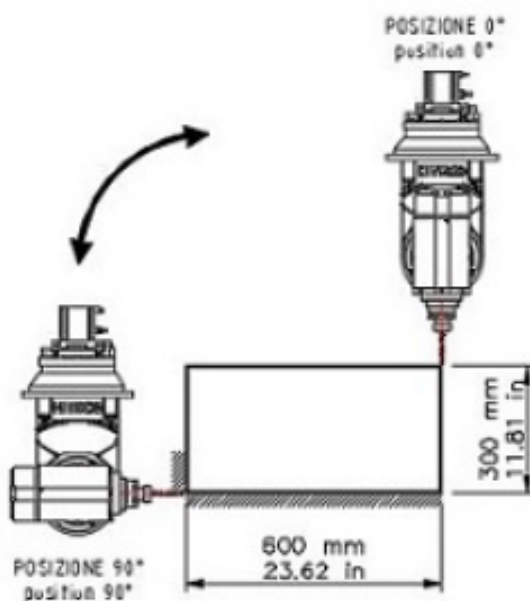
P-CAM

Designed to work on 3D basis the process programming software offers the following:

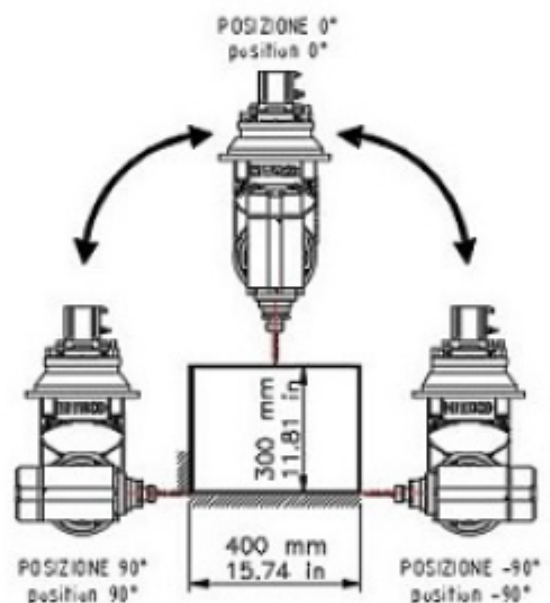
- DFX Import
- 3D Profile graphics 3D
- Standard macros (hole, circle, slot, rectangle)
- Automatic clamps positioning
- Parametrized tool chart
- Parametric variables of the macros
- D.180mm milling disk management
- Angle head management
- Tapping management
- 50 Fonts “writing” Macro
- Free macro imported from DXF
- Clamps positioning advanced system
- Processing mirroring
- Working step optimization through DXF profile
- Graphic display of Macro positioning measures
- Perspective display
- HIL import format
- Graphic display of the material removal on the finished piece

Working fields

SEZIONE MAX LAVORABILE CON UTENSILE VERTICALE NELLE POSIZIONI 0° / +90° / -90°

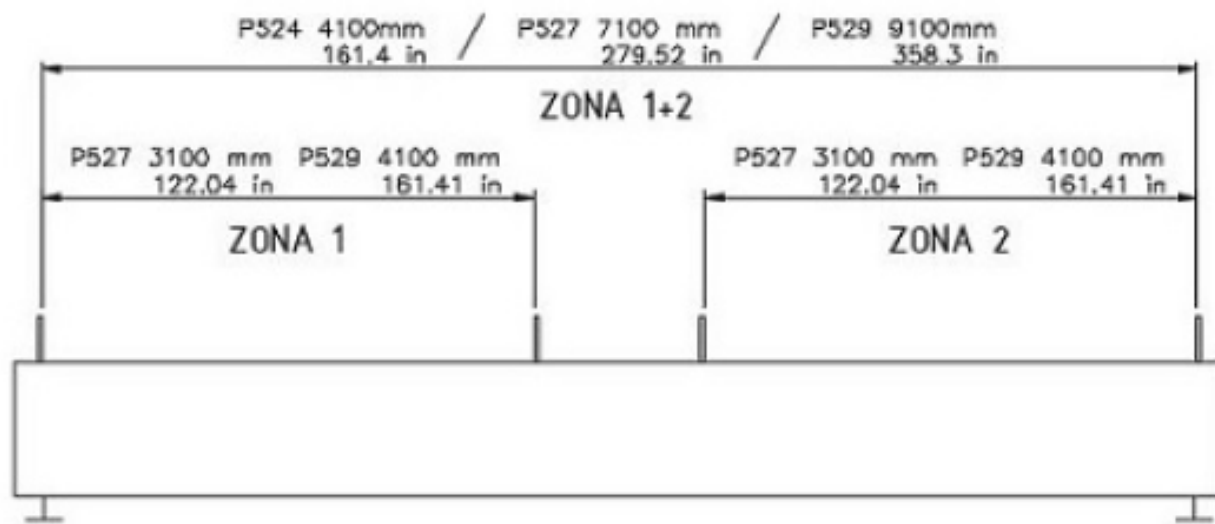


MAX. SIZE MACHINABLE WITH VERTICAL TOOL IN POSITIONS 0° / +90° / -90°



Working fields

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tool technical data



Axes travel and working speedAM

Axes travel

- X axis (longitudinal): 8.180 mm
- Y axis (transversal): 1.130 mm
- Z axis (vertical): 570 mm
- A axis (rotation): 0° / 180°
- C Axis (rotation): -320° / +320°

Axes positioning speed

- X axis: 85 m/min.
- Y axis: 60 m/min.
- Z axis: 30 m/min.
- A/C axis: 6100°/min