



TK 427 - TK 428

3 Axis machining centres



TK 427 - TK 428

3-axis CNC vertical machining center:

Structure robustness and high stability of all components of this machining center allow the TK 427 - TK 428 model to be used not only to perform machining operations on light alloys and similar materials but also on materials that require higher performances (i.e. steel, iron, etc.). The peculiarities of the machine assure an excellent superficial finishing and a better machining accuracy.

This machining center is designed for drilling and conventional milling processes and also for copy-milling operations on aluminum extruded profiles and other materials, including steel profiles up to 10 mm thick, steel reinforced PVC, and various other plastics or wood.

Standard versions are available in 3 machining lengths: 3500, 6500 and 8000 mm. Upon request the machining centre can be manufactured in different lengths in order to meet the special needs of each customer.

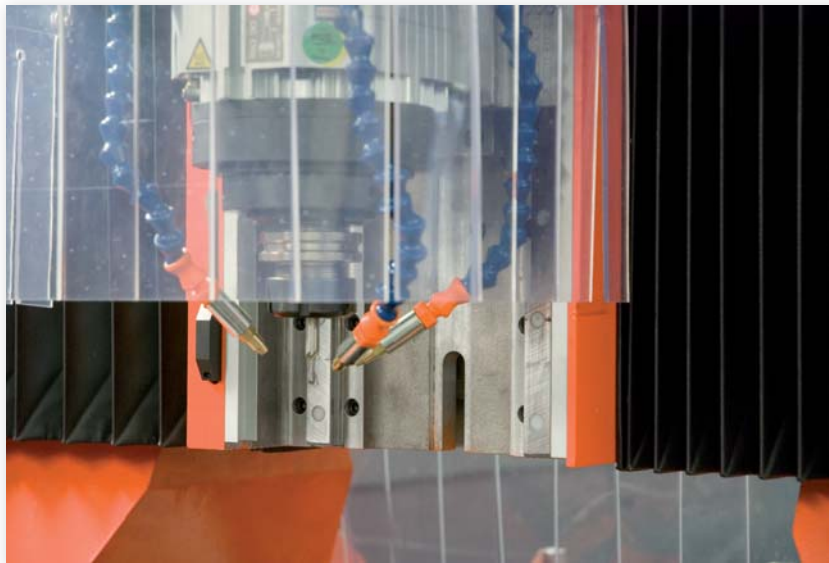
The TK 427 model differs from the TK 428 models in the different series of working lengths and in the possibility to install an (optional) system of rotating clamps.





Features

- Electrically welded steel bed frame with linear recirculating ball slideways and precision racks for X axis.
- Overhead crane in aluminum casting that is composed of two lateral supporting elements and a top crosspiece. On this crosspiece linear slideways and the ball screws with recirculating balls are mounted for Y and Z axis.
- Machines 6500 or 8000 mm long are divided into two work areas. While the unit is machining on one side, the operator can safely load/unload the second work area.
- Electric-spindle which is equipped with an automatic tool change system with an electric cooling fan.



■ **Linear slide-ways with recirculating balls**

Thanks to these slide-ways, machine's components can smoothly slide along the machining axis. The ability to withstand mechanical stress while simultaneously maintaining a low coefficient of friction and a high sliding capacity enables these linear slide-ways to improve the performance of the machining centre.



■ Micro dropped minimal lubrication

It optimizes the cooling liquid consumption during the machining; this system allows to minimize the quantity of the used product and meanwhile it guarantees a suitable cooling of the tool.



■ Pneumatic clamps

Pneumatic clamping system for the clamping of traditional profiles. The longitudinal and transversal positioning is achieved through manual adjustments.

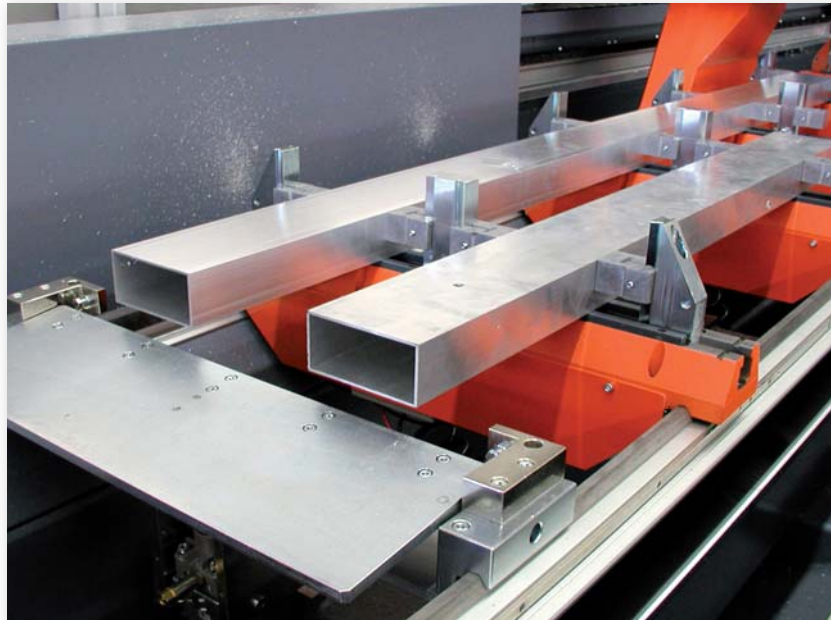


■ **Fixed tool magazine**

Fixed tool magazine that can hold up to 9 tools. It is possible to insert an additional tool magazine or to provide this model with a removable enclosure that protects tools from chips and dusts formed during the machining process (optional), according to the customer's needs.

Optional

- Full automatic protection.
- Pneumatic two-way clamps.
- Rotating clamps (only TK 427).
- Removable enclosure for fixed tool magazine.
- Mobile tool magazine (9 tools).
- Motor-driven tool magazine (14 tools and 2 aggregate heads).
- Aggregate heads.
- Powered conveyor belt.
- Supplementary coolant fluid tank - 30 l capacity.
- Laser detection kit.
- 3D probe.
- Bar code reader.
- Remote controlled electronic wheel.
- Anticollision light system with LED bars.
- Uninterruptible power supply (UPS).



■ Pneumatic two-way clamps

It is possible to use both one- and two-way clamps: Using a two-way clamp you can simultaneously machine 2 profiles with different dimensions and machining processes.



■ **Rotating clamps (only TK 427)**

The rotating clamp enables to perform machining processes on 3 sides of the profile and in all angles between -90° and $+90^{\circ}$.

Technical features

Machinability	
Axis X	3500 mm 6500 mm (Twin 2750 mm x 2) 8000 mm (Twin 3500 mm x 2)
Axis Y	500 mm (TK 427) - 800 mm (TK 428)
Axis Z	220 mm
Max displacement speed	
Axis X	80 m/1'
Axis Y	30 m/1'
Axis Z	30 m/1'
Electric-spindle	
Cone attachment	ISO 30
Max power (S1 service)	7,5 kW
Max torque (S1 service)	11,9 Nm
Max rotation speed	24000 rpm
Cooling system	Electric cooling fan
Tool magazine	
Fixed	9 tools
Mobile (optional)	9 tools
Motor-driven (optional)	14 tools and 2 aggregate heads
Accuracy	
Repetition on linear positioning	+/- 0,1 mm

Software

Over the years Tekna has specialized in developing software solutions and now offers a broad range of products.

To create programs that control the machines, Tekna provides user-friendly software tools that can be used both by professional CNC programmers, who can implement the most complex solutions, and by completely inexperienced users; after a few training hours the customer will be able to operate the machining centre using a graphical programming.

Software solutions offered by Tekna result from an accurate design and from the actual customer needs analysis. The simplicity of usage of these solutions reduces the management time and costs.

All machines come with **antivirus software** preinstalled.

■ CN6 Numerical Control

The Numerical Control basic software controls all functionalities of the machining center through an interface based on windows that includes:

- 👉 The user graphic interface (HMI, Human Machine Interface) displays all variables of the centre, both about programming and user configuration.
- 👉 Project file: simple, intuitive and extraordinary useful function of CN6 which can be used as interface between any management program/software and the machine. In a company it ensures a communication (i.e. a unique language) between the management function and the machine operators.
- 👉 3D machining process: it is possible to import directly the .dxf file of the profile to be machined thus displaying a 3D image of the workpiece completed with the configured machining processes.
- 👉 Clamp positioning: automatic counting managed directly by the program; it can be run in different ways (static or dynamic) depending on the features of the desired machining cycle.
- 👉 The Scheduler function runs in several modes oriented both to a mass production and to a more flexible production in small quantity.
- 👉 Integrated **Formulas Software**: you can use it to define formulas based on the default variables (for example, the profile length) and then use them as macro parameters or within the "If" function.

■ ISO language editor

For numeric-control machines the international programming language ISO is used. With this language you can create programs to perform every kind of machining, with linear or interpolated paths, variable speeds, tapping, parameter use etc. and for managing all functionalities of the machining centre.

■ SLW Self-learning

With the Self-Learning SLW software the customer can easily create machining programs, selecting from a graphic menu a default number of functions (macros). The macro library generated by Tekna includes a large number of machining processes and it is possible to develop functions that increasingly simplify the man-machine interaction so that even an inexperienced user can very easily create several machining programs.

■ NC Tool

The NC Tool is a 2D CAD/CAM software tool that, starting from a CAD drawing, allows the operator to create CN6-compatible machining programs in ISO language by inserting information on the desired machining process.

Any changes to geometrical scales and to the dimensions of an existing drawing are automatically converted in a new updated ISO program. NC Tool can import/export .dxf and .dwg files, moreover it allows text editing and the subsequent generation of ISO codes.

■ TK Cam

Software package that allows the creation of ISO programs using a 3D graphic programming.

With TK Cam it is possible to assign machining operation regardless of machine models and tool series and view a simulation of the running program in a 3D representation. In TK Cam it is possible to optimize tools and clamps, it provides an anti-collision function and the automatic generation of ISO codes for the program. In the TK Cam it is possible to import specific .dxf/.dwg drawings and to assign the corresponding machining operations. In addition allows the interaction with the management programs commonly used in the window and door frame manufacturing industry.

■ TK CadX

TK CadX is a software allowing to import 3D models and to identify the workings that can be carried out by a numeric control machine. By importing files in STEP/TK CadX formats, it independently scans any surface, it analyses them and processes the necessary data for the workings of the pieces; these data are exported in a NCX file (format read by TK Cam) for the automatic generation of ISO working programs of any single machine.

■ ProfileCam

ProfileCam is a new Tekna software that provides a 3D graphic environment specifically designed for machining centers. ProfileCam has been designed and developed to better meet the needs of graphic design professionals for the positioning and the structure of simple machining processes and to help to cut costs with an extremely competitive price list.

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