

General Catalogue

Machining lines



Tekna was established in 1964 to produce efficient aluminum machining systems.

The experience gained in the window/door frames industry and the know-how accumulated in the field of machinery have allowed Tekna to expand its product range including machining lines.

Tekna has developed automatic or semi-automatic lines with systems that offer a high flexibility and can be adapted to different manufacturing contexts: from the profile cutting machines to the complete machining lines that provide for more complex machining operations and allow to obtain, at the end of a machining cycle, a piece that is ready for the assembly stage.

Thanks to the versatility of their components, Tekna machining lines can meet the manufacturing needs of every customer: profiles loading/unloading systems, clamping, handling and machining can be customized according to the characteristics of the workpieces, to the working cycles and to the type of machining to be performed.

Over the past years we have designed several models that have been more or less customized: in fact, each supplied machining line is equipped with solutions that are specially designed according to different needs.

Thanks to the gained experience, Tekna can offer appropriate systems for the machining and the cutting of aluminum profiles that are used in the window/door frame industry and in many other manufacturing fields.

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The TK 804/1 model features an automatic machining and cutting system for aluminum profiles and it is designed to minimize the manual intervention of the operator during the machining cycle, allowing the operator only to load/unload profiles.

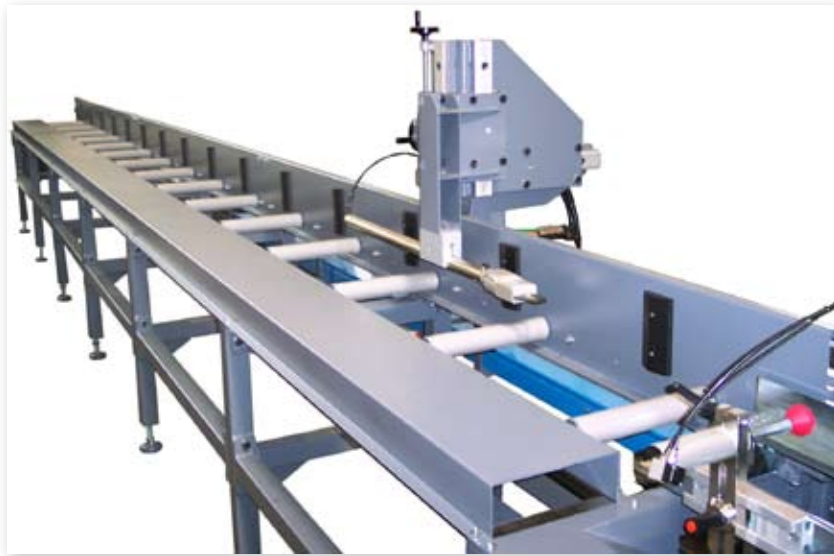
The machine can be equipped with electric-spindles (4 max) that allow to perform drilling operations on the profiles before they are cut.





Components

- Loading table with a 1 axis CNC pusher.
- Drilling unit (optional).
- Cutting unit .
- Conveyor belt.



■ Loading table with a 1 axis CNC pusher

Loading table for the automatic movement of the profiles; a 1-axis CNC pusher (X axis) slides over this table. The pusher uses a pneumatic gripper to pick the workpiece from the loading table and to quickly place it near the drilling unit (optional) and then in the area of the cutting unit.



■ Drilling unit (optional)

The TK 804/1 model can support up to 4 electric-spindles, 2 for each opposite side of the machine that are installed one in front of the other; in this way the machining processes can be executed on both sides of the profiles.



■ Cutting unit

Motor-driven single-head cutting machine whose heavy structure ensures a great stability during the machining process. This machine can position the head at a high-speed (5500 grades/1') and its machining table can be customized by configuring different systems that adapt to the numerous types of machined profiles.



■ Conveyor belt

The CNC controlled conveyor belt is mounted at the side of the cutting machine and it is used to collect the machined profiles and then transfer them to the unloading area.

Technical features

LOADING TABLE

Max profiles length	6500 mm
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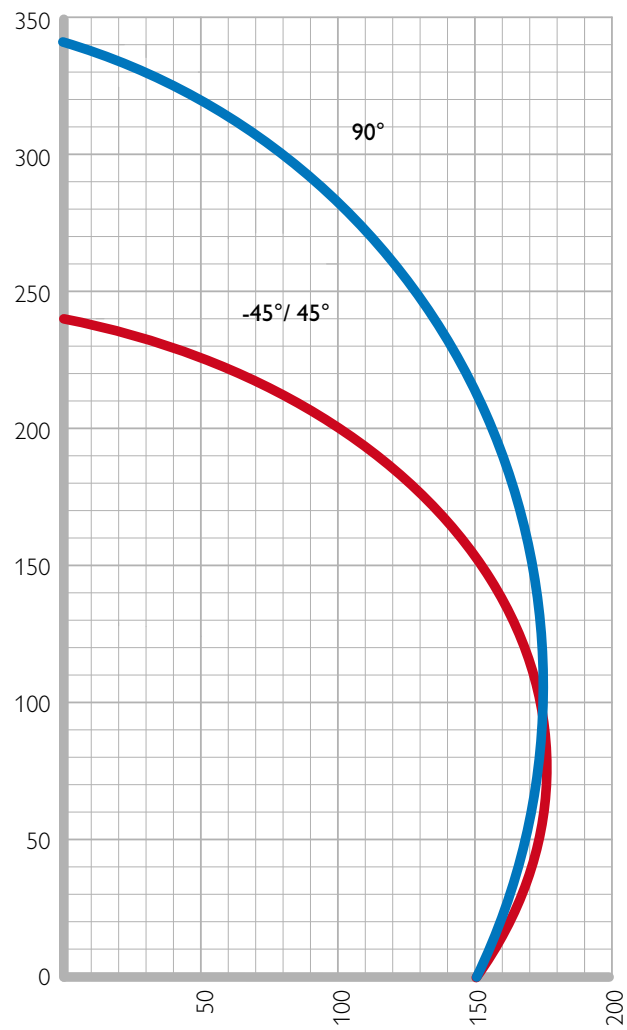
DRILLING UNIT (OPTIONAL)

Electric-spindle (4 max)	
Collets	ER 25
Max power (S1 service)	1,3 kW
Max rotation speed	12000 rpm

CUTTING MACHINE

Max power (S6 service)	2,2 kW
Max rotation speed	2800 rpm
Head positioning speed	5500 deg/1'
Allowed angles	-45° deg to +45° deg
Blade diameter	500 mm

Cuts graphic



Technical data reported in the table are conditional on the systems of the machining line, therefore these data may vary depending on the chosen set-up for the different manufacturing needs.

More technical data can be provided after a customized study of the machining requests of the client.

TK 804/2

The TK 804/2 model features an automatic cutting system for aluminum profiles and it is designed to minimize the manual intervention of the operator during the machining cycle, allowing the operator only to load/unload profiles. The loading/unloading operations have further decreased thanks to the presence of a in-sequence loader and of an unloading table. The machining line can be equipped with a printing and labeling machine (optional).





Components

- In-sequence loader.
- Loading table with a 1-3 axis CNC pusher.
- Labeling machine (optional).
- Cutting unit.
- Conveyor belt.
- Unloading table.



■ In-sequence loader

Using the CNC control, the system automatically positions the profiles on the loading table where they are picked by the automatic pusher. Thanks to a series of interchangeable comb-like elements, supplied with the machine, it is possible to support several different profile types.



■ Loading table with a 3 axis CNC pusher

Loading table for the automatic movement of the profiles; a 3-axis CNC pusher slides over this table. The pusher uses a pneumatic gripper to pick the workpiece from the table and to quickly place it near the labeling machine (optional) and then in the area of the cutting unit.



■ Labeling machine (optional)

The CNC labeling machine prints and applies self-adhesive labels on the profiles to be machined. This tool offers an optimization opportunity because it provides companies that need to classify several series of products with an easy identification method for the manufacturing process.



■ Cutting unit

Motor-driven single-head cutting machine whose heavy structure ensures a great stability during the machining process. This machine can position the head at a high-speed (5500 grades/1') and its machining table can be customized by configuring different systems that adapt to the numerous types of machined profiles.



■ Conveyor belt

The CNC controlled conveyor belt is mounted at the side of the cutting machine and it is used to collect the machined profiles and then transfer them to the unloading table.



■ Unloading table

Unloading table completed with a mobile sidewall driven by pneumatic actuators that pushes the profiles in the storage area.

Technical features

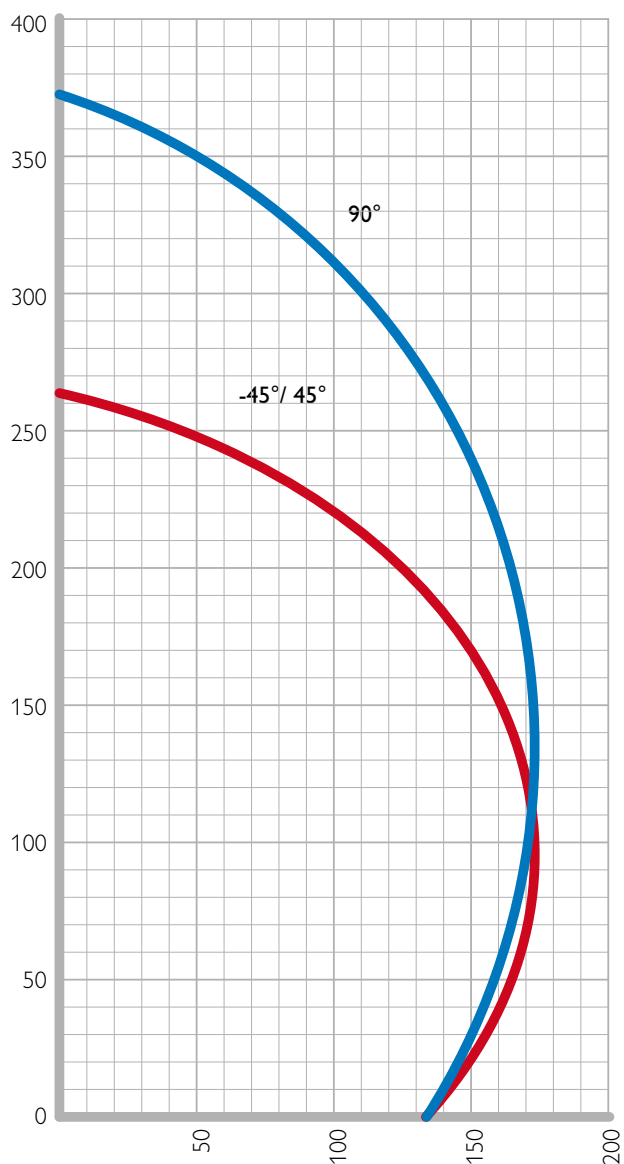
IN-SEQUENCE LOADER

Capacity	15 profiles
Max carrying capacity	550 Kg
Max length	6500 mm

CUTTING MACHINE

Max power (S6 service)	2,2 kW
Max rotation speed	2800 rpm
Head positioning speed	5500 deg/1'
Allowed angles	-45° deg to +45° deg
Blade diameter	500 mm

Cuts graphic



Technical data reported in the table are conditional on the systems of the Machining line, therefore these data may vary depending on the chosen set-up for the different manufacturing needs. More technical data can be provided after a customized study of the machining requests of the client.

The TK 804/3 model features an automatic machining and cutting system for aluminum profiles and it is designed to minimize the manual intervention of the operator during the machining cycle, allowing the operator only to load/unload profiles. The loading/unloading operations have further decreased thanks to the presence of an in-sequence loader and of an unloading table.

The machine comprises a multi-spindle combined unit, complete with 3 controlled axes, where it is possible to install a maximum of 8 electric-spindles to perform milling, drilling and tapping operations on 4 sides of the profiles before they are cut. The machining line can be equipped with a printing and labeling machine (optional).





Components

- In-sequence loader.
- Loading table with a 3 axis CNC pusher.
- Labeling machine (optional).
- Multi-spindle combined unit.
- Cutting unit.
- Conveyor belt.
- Unloading table.



■ In-sequence loader

Using the CNC control, the system automatically positions the profiles on the loading table where they are picked by the automatic pusher. Thanks to a series of interchangeable comb-like elements, supplied with the machine, it is possible to support several different profile types.



■ Loading table with a 3 axis CNC pusher

Loading table for the automatic movement of the profiles; a 3-axis CNC pusher slides over this table. The pusher with controlled axes uses a pneumatic gripper to pick the workpiece from the table and to quickly place it near the labeling machine (optional) and then in the area of the multi-spindle combined unit and cutting unit.



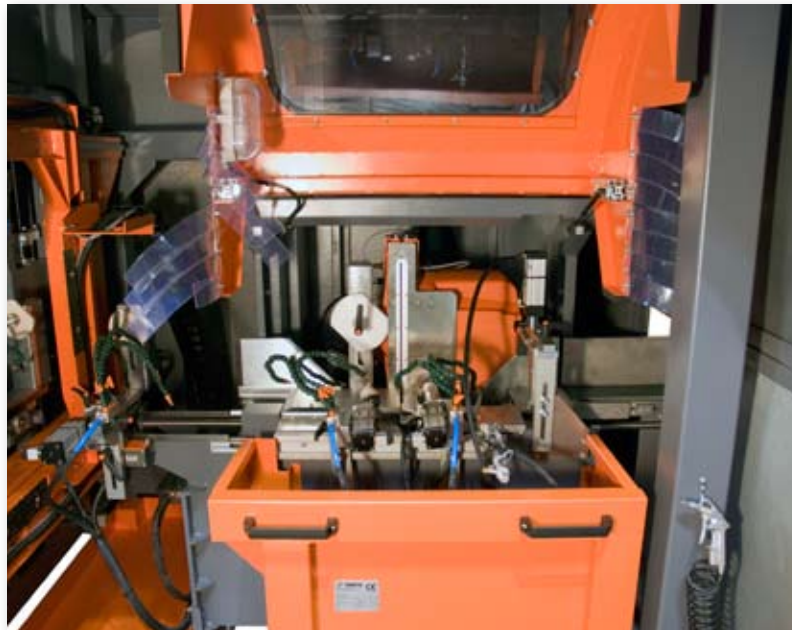
■ Labeling machine (optional)

The CNC labeling machine prints and applies self-adhesive labels on the profiles to be machined. This tool offers an optimization opportunity because it provides companies that need to classify several series of products with an easy identification method for the manufacturing process.



■ Multi-spindle combined unit

The structure is designed to support up to 8 electro-spindles (2 for each side) that can be used to perform milling, drilling and tapping operations on 4 sides of the profiles; the layout and the number of electro-spindles may vary based on customer's demand.



■ Cutting unit

Motor-driven single-head cutting machine whose heavy structure ensures a great stability during the machining process. This machine can position the head at a high-speed (5500 grades/1') and its machining table can be customized by configuring different systems that adapt to the numerous types of machined profiles.

TK 804/3



■ Conveyor belt

The CNC controlled conveyor belt is mounted at the side of the cutting machine and it is used to collect the machined profiles and then transfer them to the unloading table.



■ Unloading table

Unloading table completed with a mobile sidewall driven by pneumatic actuators that pushes the profiles in the storage area.

Technical features

IN-SEQUENCE LOADER

Capacity	15 profiles
Max carrying capacity	550 Kg
Max length	6500 mm

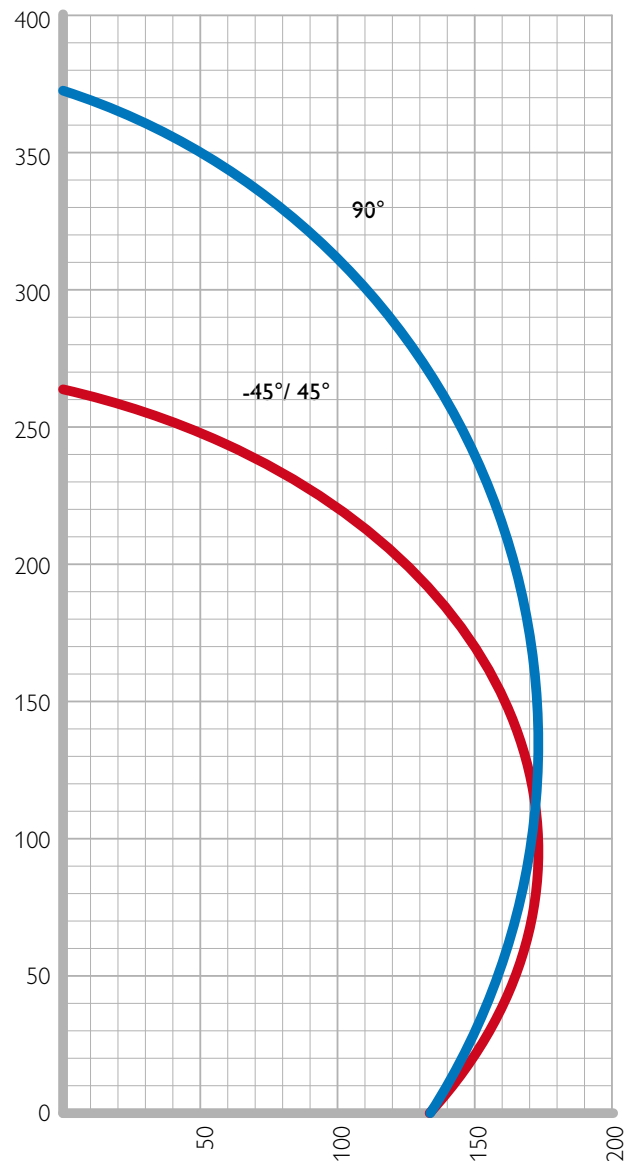
MULTI-SPINDLE COMBINED UNIT

Machinability	
Axis X	250 mm
Axis Y	150 mm
Axis Z	150 mm
Electric-spindle (8 max)	
Collets	ER 25
Max power (S1 service)	2,4 kW
Max rotation speed	12000 rpm

CUTTING MACHINE

Max power (S6 service)	2,2 kW
Max rotation speed	2800 rpm
Head positioning speed	5500 deg/1'
Allowed angles	-45° deg to +45° deg
Blade diameter	500 mm

Cuts graphic

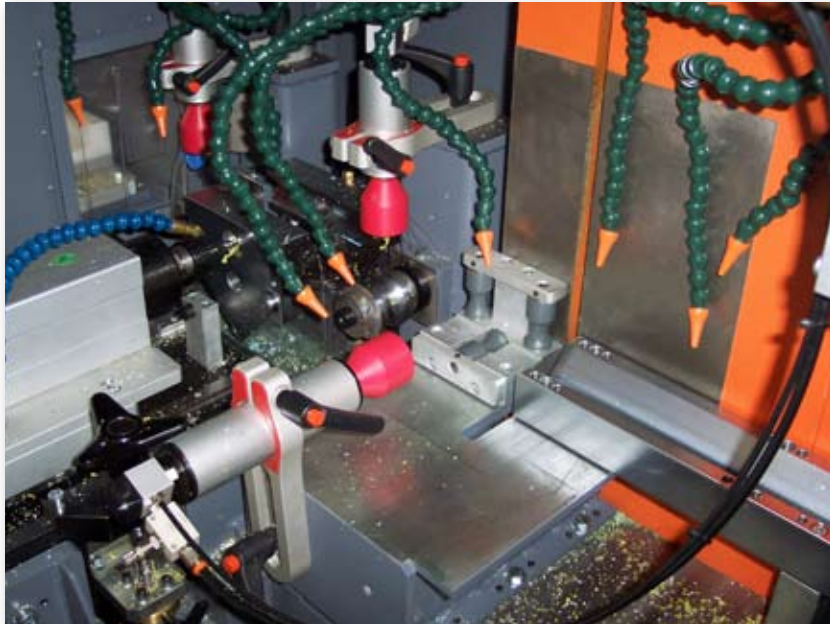


Technical data reported in the table are conditional on the systems of the machining line, therefore these data may vary depending on the chosen set-up for the different manufacturing needs.

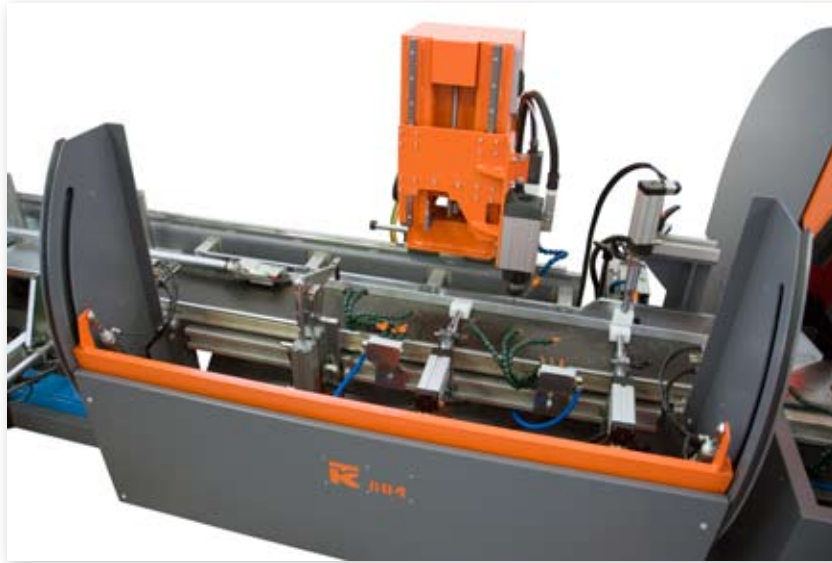
More technical data can be provided after a customized study of the machining requests of the client.

Special machines/Customization

Tekna has always been ready to find solutions that could meet customers' different manufacturing needs. For this reason, different versions of the TK 804 model have been manufactured. Each version is customized with special systems that can be used to perform machining processes other than those the machine was originally designed for. Following are some production examples that Tekna has developed to meet its customer demand.



- TK 804/1 model for the machining of round profiles. It is supplied with a special machining table and with a pusher that allow for the automatic rotation of the profiles in order to perform drilling operations at different angles.



- TK 804/2 model completed with a 3-axis CNC vertical milling unit and with a fixed horizontal drilling unit.



- The TK 804/3 model offers a combined multi-spindle unit that is equipped with 4 electro-spindles for milling/drilling operations and with 4 special electro-spindles for tapping operations.

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.

■ CN6 Numerical Control

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

- ↳ User graphic interface (HMI, Human Machine Interface) that displays all variables of the line (for example spindle position, tool rotation and feed, etc.) and from which it is possible to activate some auxiliary devices (such as lubrication system, chips belt, etc.).
- ↳ User table that combines each tool with one or more performance such as rotation speed, penetration speed or milling speed.
- ↳ A series of table with all configuring parameters of the machining line.

■ 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).

Tekna created a macro library that contains a huge range of machining processes which the user should only assign the coordinates to, for the X, Y and Z axis. The Self-Learning SLW is very user-friendly: after a two-hour training even a beginner user can use the machine.

Together with the Self-Learning SLW software, the customer can use the **Formulas Software**. You can use it to define formulas based on the default variables (i.e. the profile length) and then use them in the Self-Learning macros. This function is very useful when you have to perform same machining processes on profiles of various lengths.

■ TK Cut List Optimizer

The TK Cut List Optimizer is a program that can be used to create optimized cut lists for cutting machines.

Its main functions are:

- ↳ Entry and editing of cut types: The user can insert and modify the cut types by specifying data as cut length, profile height, left/right cut angles, quantity, number and hole position, if any.
- ↳ Optimization: The optimization of the bar cut allows to minimize the production waste resulting in a substantial saving of material.
- ↳ Data import and export: Cut lists to be optimized are imported from a .csv (comma separated values) file. Optimized cut lists are exported in an Excel worksheet, in .xls or .xml format.
- ↳ Interface to the Self-Learning SLW software that can be used for programming the combined multi-spindle unit (only for TK 804/3).
- ↳ Labels: machined products can be easily and quickly identified thanks to the created and printed labels.

■ Abacus Win Cam

The license of use of the Window/Door Frame Software package (for Windows OS) includes:

- ↳ Data file: A graphical interface assists the user in inserting technical and commercial data of profiles, accessories, glasses and panels for an unlimited number of different series. These data can relate to hinged or sliding door/window frames, shutters, partition walls, frames with folding openings and curtain walls.
- ↳ Types: It is possible to graphically create any window/door frame model (complete with sections and intersections). Each type can be complete with an accessory kit.
- ↳ Work orders: Starting from the type of product, the user can create a quote, the cut note, the optimization of the cut notes or the summary of cuts divided into profile codes and progressive measures.
- ↳ Quotation: The program creates printable quotations with cost estimates that can be submitted to the customer.
- ↳ Cutting lists: The software processes the cut lists using the optimization print function, the summary of multiple lists and a .dxf view of the profiles.

Machining lines

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