SOUKUP
WOODWORKING MACHINERY

inspired by craftsmanship

Window Manufacturing

Advanced technology for wooden windows and doors

Windows, wood and the future

Windows form that essential component of construction that brings natural light into our homes. However, they also serve other important and useful purposes in our modern life: helping to conserve energy, adding style, elegance and atmosphere inside our homes, and enhancing the appearance of the façade of the building. Wooden windows have always been with us, but today we are fortunate enough to be able to benefit from the dynamic developments and innovations offered by the window and door industry as a whole. Today's window manufacturers need to produce windows using the most recent developments in technology, ensuring that insulation and weather protection properties are part and parcel of the process. Meeting the demands and expectations of architects and homeowners is, of course, paramount. All of these factors collectively lead to a complex task only managed by ensuring a flexible approach.

SOUKUP Woodworking Machinery offers advanced technology for wooden window manufacturing businesses around the world and, with 20 years experience in fenestration, the company offers tailor-made solutions. The company's success is not based purely on machinery, but also on efficient production. Essentially, similar to the synergic processes in any living organism, window technology requires all of its individual parts to work together in harmony and synchronicity.

Welcome to our world of wooden windows!

SOUKUP, based in the Czech Republic, has always been in tune with its customers' requirements. The primary reason we started to build our own machines was that we were unable to find any machine on the market which could fully match the joiner's way of thinking and doing things.
By taking a more in-depth look at our projects, you will see that there are many original approaches and solutions to various technical tasks all based on our longtime practical joinery experience. We do not want our customers to simply be able to use the machines; more importantly, we want them to feel naturally involved as part of the overall process. We believe that the correct choice of window machinery, the organisation and use of consequent technology, and the careful preparation of window projects are key factors in the success of future production. We will be pleased to share our knowledge and experience with you.

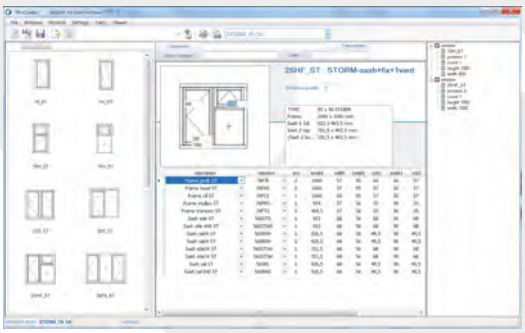
Our brand Soukup Design is focused on the development of new window and door constructions and finding the best solutions for our clients.

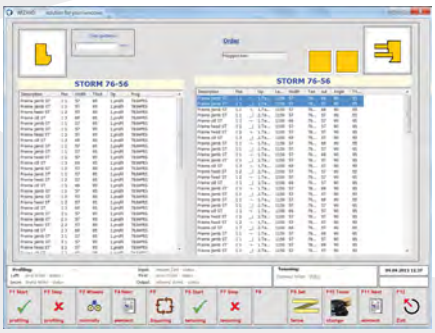
SOUKUP Design

Small workshops looking for a new level of manufacturing

It is the norm that in most traditional woodworking businesses one foreman manages all of the important operations. In addition to the manufacture of doors and windows, other important and necessary products including staircases, kitchen cabinets and fitments, flooring and beading are required for completing a house or housing project. If the major part of the project involves the production of windows and doors, then it would make sense to invest in and start working with the Soukup Crafter. This small, compact angular centre has the capacity to undertake all tenoning and profiling operations and, with the set-up of all electronic working units, a substantial reduction in production time is achieved. The Crafter can be used as a centre for working in sequence, but it operates more efficiently when it is automatically programmed to work from a created production worklist.

For the operation of this small joinery machine, a production list is prepared in the office using SOUKUP produced WinCreator software and directly links to the machine. The operator is then easily able to open the work list and start working. WinCreator generates a production worklist for crosscutting and batch arrangement prior to machining, totally enhancing workshop organization.





Due to its compactness, the Crafter can be accommodated in almost any workshop. The special double tenoning cycle enables tenon shortening rendering the involvement of the left rotating spindle for stormproofing unnecessary. The machine is enhanced with a return conveyor enabling one-man operation. The special horn milling unit can efficiently make traditional double-hung sliding sash details when sash replacement is required. This unit, by using a trenching tool, can trench the sill and head to create the pulley stiles. Even traditional bevelled meeting rails can be produced easily. With these features, the Crafter is the machine which fully meets the artisan's needs in the more efficient production of windows and doors compared to traditional working methods. We are not able to promise that the Crafter will accomplish every single element of bespoke work, but it will efficiently manage the majority of daily orders and enable expert craftsmen to create their masterpieces.

Processing of bevelled meeting rails and stiles with horn details

Horizontal milling unit for horns and trenching operations

Sliding boxes made from profiled beads on the Crafter

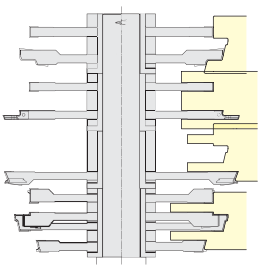
Shorted tenons allow stormproofing of sashes without breakout.

Automatic tenoning as a starting point of your business

Although Crafter is an ideal machine for handicraft window manufacturing, we can imagine that for many workshops even a simpler solution can be sufficient, especially when the business is starting or windows are not the only product of the company. The automatic tenoning machine Temac in combination with an existing profiling machine or a spindle moulder can represent a simple working centre. Temac has taken the most important features from Crafter – the tenoning spindle for multiple tooling with automatic positioning, a cut-off saw and a tenoning fence. Reading data from WinCreator has revolutionized organization and the whole process.

Temac has a fully electronically controlled shaft, a cut-off saw and a fence that are automatically adjusted and powered by an industrial PC with WinCreator software.

Tenoning tools with programmed positions and split working



Wizard machine can also function independently as a tenoner or profiler. Work can sometimes be processed more effectively on a four-side moulder with tenoner. However, when windows are made traditionally, a separate profiling machine for stormproofing after sash assembly might be required.

The Wizard Tenon incorporates thoroughbred industrial design based on the successful Wizard machining centre. It has a generous spindle length of 620 mm with an upper supporting bearing and is designed for easy tool replacement. It can achieve multi-faceted processing of the timber during a single pass through the machine. These are the main features of the machine.

The Wizard Tenon CNC tenoning machine has been designed for tenoning of any timber frame construction but especially windows and doors.

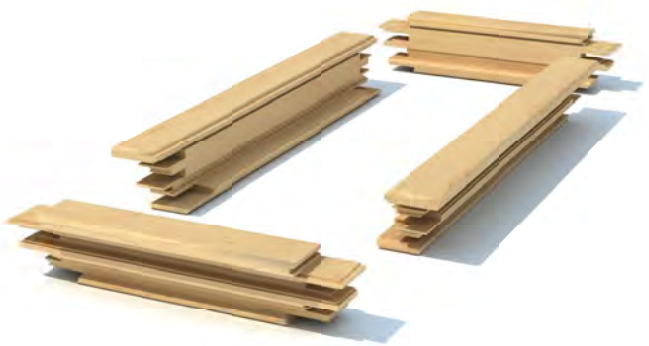
Innovative change system for tenoning tools simplifies and accelerates the tool exchange with a long shaft with a contra support.

Tenoning with a forwards-backwards working cycle

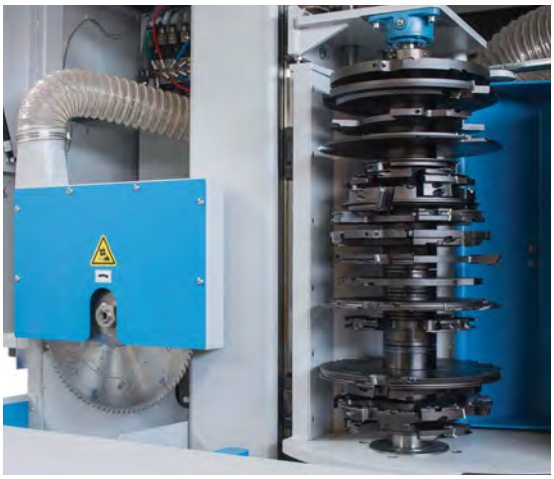
Serial manufacturing of windows and doors

We have found that the most efficient way to manufacture windows, bearing in mind the level of investment and performance, is by the knockdown system on an angular centre. Window components are tenoned and profiled first and, before assembly, treated with impregnation agents and a primer coat. This system not only saves time in the stormproofing of assembled casements, but also renders the sanding, repairing and handling of window components easier.

The Wizard series, intended for window businesses of all sizes, offers high level performance.
The Wizard 4L model, with its unique configuration, enables pre-squaring production. The tenoning operation is carried out by spindles long enough to comprise all tenoning tools. SOUKUP's unique tenoning cycle tenons and mills the outer shape of the timber end in a time-effective manner.
The duality of the left and right profiling spindles ensures what is essential on this system - precision. As only one single machine operation is involved, the process is incredibly fast and precise.
All units are driven by high-speed brushless motors and the long gear feeder guarantees smooth surface finishes.



The machine is intuitively controlled via a 12" touch screen. For accessing files there are two options: either by creating a worklist in WinCreator or by using interface link data from the estimation software. The full use of the machine into the wooden window-making process is then ready for implementation - from the initial cutting and moulding to the final stages of assembling and finishing.



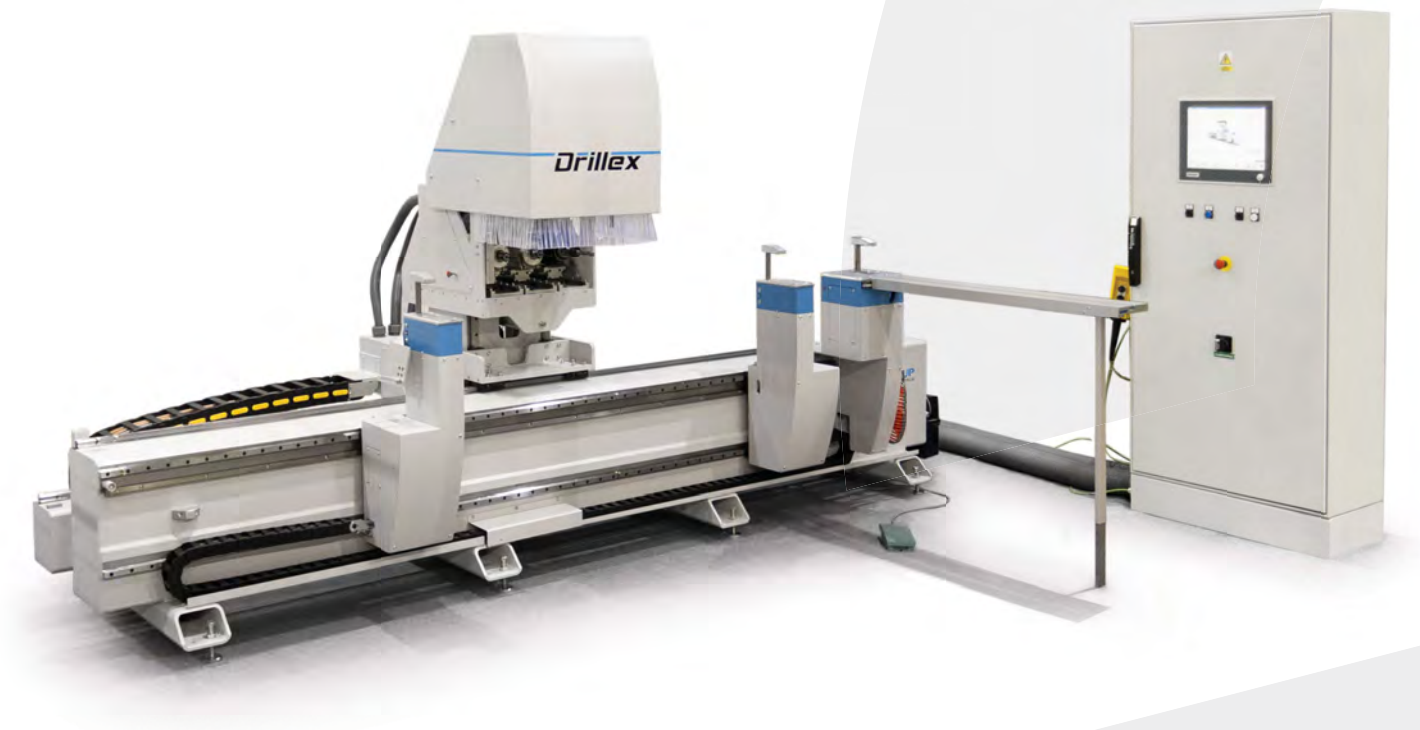
Another member of the Wizard family is the Wizard 3S. This machine is designed for the production of traditional windows (which commonly have complicated profiles) or, often, alu-clad windows. The machine offers absolute durability, full electronic control, extra space for tooling and everything that you would expect from an industrial machine.

Fully machined components

Our portfolio is completed with drilling and milling machines designed and developed specifically for window and door manufacturers.

The Drillex machine is equipped with 6 working units, with two moving and one fixed clamping table. It is designed for drilling of doweling holes, mortising of slots, milling of door lock pockets, hinge seats and bevelled louvre slots. It ultimately creates a fully machined piece complete with all connection holes or hardware milling.

A combination of linked Drillex and Wizard machines can be managed by one operator with the facility to print labels for the subsequent identification of drilled pieces at the next stage of manufacture.



Exchangeable drilling heads
for handle and window hinges

Drilling units

Like Drillex is designed for a serial window production; the drilling and milling machine Versa is perfect for handicraft manufacturing. After the initial excitement from the new Crafter machine, where all components are effectively tenoned and profiled, we realize that a lot of drilling and milling operations (e.g. chiseling, boring, mortising hinges) still remain. Versa is an ideal helper here. The simplified drilling version is intended especially for doweling bars, mullions and transoms in tilt&turn window production, but the CNC milling version can handle all requirements during windows and doors production. Versa, like all our machines, proceeds data from WinCreator software and can also work individually with manually put macros.

The machines are designed for standard operations in windows and doors manufacturing. Here are some examples of processing on the Drillex and Versa machines:

Mortised slots with rounded tenons

Head and longitudinal drilling for dowel connection

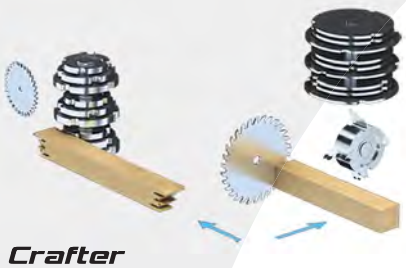
Drilled window hinges

Holes for window handle, mortised for door locks cases

Bevelled slots for louvres

Door 3D and butt hinges

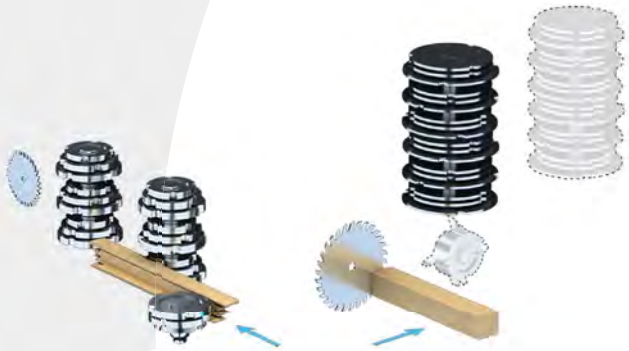
Variety of technique for any requirement



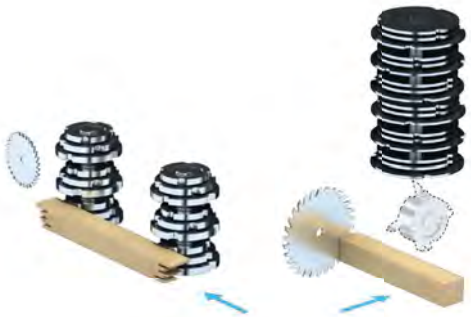
Crafter

Temac

Arcus

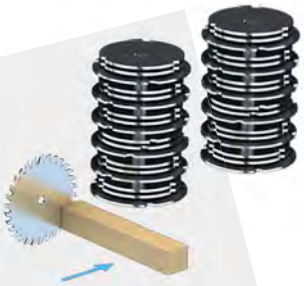


Wizard 4L



Wizard 3S

Wizard Tenon



Wizard Tenon 2

Wizard Profile

Wizard Drillex

Drillex

Versa

Efficient material preparation for smart manufacturing

The Crossline 500 was designed to meet the needs of our clients. This automatic cross cut saw was developed specifically for window and door manufacturing but it also suitable for use in other sectors of the woodworking industry.

Automatic crosscut saw consists of a main machine with sawblade ø500 mm, servo driven electronic loading pusher and a fixed unloading table. The machine is optimized for window production and can be utilised in production lines equipped with material handling conveyors and manipulators.

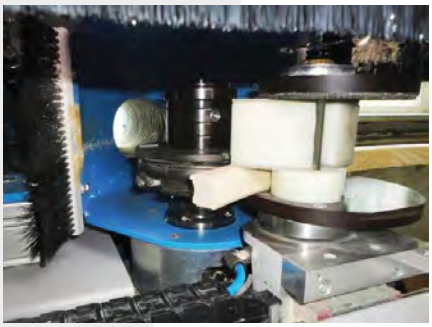
Besides standard cutting, the machine is capable of cutting window scantling in pairs which simplifies production sequencing. An optionally attached label printer can be used to attach labels so as to identify cut elements in subsequent operations. When used in conjunction with data downloaded from WinCreator, the Crossline 500 becomes an integral part of the production control system along with other key machines which use the same data.

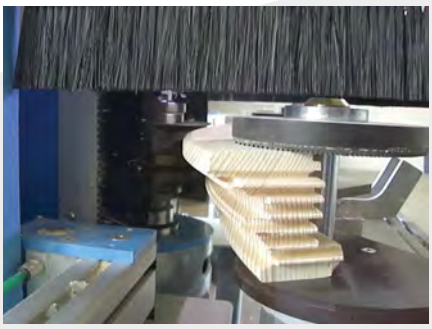
side and top clamp for precise cut

industrial computer with 7" touch screen for manual control or with data from WinCreator.

Making arched components

For workshops which mainly concentrate on window production, the special Arcus machine provides a practical solution. Thanks to shared data from WinCreator can be curved segments or shaped door parts produced more efficiently than on a universal CNC router.





The specially developed Segment press facilitates the precise joining of finished pieces.

The low manpower workshop

The greatest development in the modern workshop is the provision of technology which affords the fully automated manufacture of windows and doors. Whatever is designed in the office can be sent paperlessly to the machine in the workshop. At the beginning of the process, The Dexter machining centre's scanner will automatically identify the timber to be processed.

The Dexter provides cutting-edge technology combining the use of a stationary CNC working centre and a through-feed CNC profiler. While the working centre makes the end profiles on timber via drilling and milling techniques, the profiler, working from both sides simultaneously, completes the profiling process. This system facilitates engagement of different stages of the process at the same time, hence significantly accelerating production.

Fully automatic component processing

Profiling unit working from both sides

Tenoning spindle with drilling units

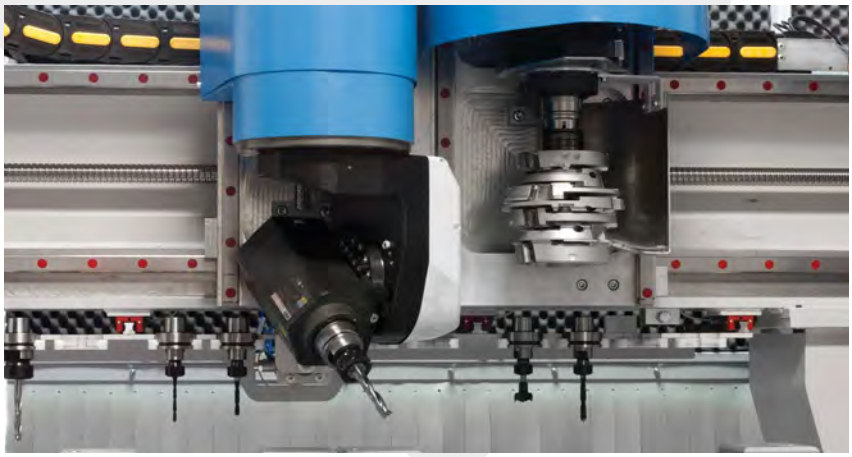
The machine can handle tools of larger diameters and enables limitless tenoning or dowelling of corner joints. The profiling machine, operating with two units, creates the precise two-sided profiling of even very complicated components. Timbers of up to 4.5 metres in length can be loaded from the conveyor and the whole process and outfeed is automatic. A sequenced order of timber is not required. Pieces can be processed frame-by-frame or randomly to facilitate easier organization. Meanwhile, the operator is free to continue with other necessary tasks such as gluing, impregnating and assembling. The Dexter can operate in extended shift time or during labour breaks. The Dexter is simply the right machine to use when minimum manpower and full automation are required.
Modular construction of the machine allows diverse operations to be performed in large customized projects of mass window production.

CNC window processing

The newest SOUKUP CNC router, the UNIX, reflects the latest development in window manufacturing and is a welcome addition when the workshop is equipped for universal joinery work. After window production, the largest elements of production are doors, kitchen cabinets, stairs and conservatories. The UNIX can serve as an optional extension to the Dexter machine for particular processing or as the main machine for flexible businesses.

The UNIX is not only a stronger CNC machine suitable for solid wood - it is purposely designed for window and door production. This original concept has two working units: the main 3-axis unit providing safe machining of mass timber window profiles, and the flexi 5-axis unit which substitutes all drillers and working aggregates. The 5-axis unit also offers a new approach when working on 3D operations such as those required in conservatory design.

This heavy, robust, low-vibration construction provides the machine with greater stability for surface quality even at high working speed.



The working tools on the main 200 mm-long arbores are split for flexible operation enabling different aspects of work to be carried out without needing to change tools, and always optimized for smooth workflow.

Serial and individual manufacturing

The work table is divided into two parts – the first part, with automatic moving supports, is optimized for window component processing; the second part, with vacuum consoles, for clamping of curved pieces, panels and special products. This versatility makes the UNIX the perfect choice when flexibility and performance are required.

The control of the machine is, again, in the hands of WinCreator with the inclusion of new modules for arch pieces and CAD/CAM for panel work processing.

The SOUKUP control system brings a new dimension to the work

The whole range of SOUKUP machines are powered by the highly respected Beckhoff industrial control system. The SOUKUP team of experienced software specialists integrates the industrial PC with Ethercat connected servo-drive systems and input-output modules to create a harmonised system without compromise.
Our original control software is extremely flexible and provides customized solutions to address all design details.
The creation of window components to be machined begins in WinCreator as a simulated workflow which is then sent to the machine and processed by the SOUKUP control system. WinCreator is compatible with all known window design software packages. The user-friendly intuitive environment makes machine control, tool set-up, tenoning, profiling and macro-processing straightforward. Customers can also access information relating to the real time of production, the number of manufactured pieces per order and, also, the condition of the tools in relation to the measurement of metres of timber already worked on. Information technology has become an essential component of our everyday lives. Accordingly, even the smallest SOUKUP machine is fully integrated into an information system.

Precisely tailored operational window project

The experienced SOUKUP team of window specialists is engaged in research in Europe, the USA and Asia, monitoring developments in window design so as to be able to integrate the most up-to-date trends into customers' projects. Complex studies start with the consideration of environmental conditions, local building rules, standards and conditions, evaluation of existing window conventions, and end with the hardware or insulation glass unit being specified. Customers can profit from this expertise, being able to focus on their part of the business and with SOUKUP delivering an optimized window line with a fully operational window project.

The strength of the SOUKUP team in turnkey projects has been realised through cooperation with its reliable partners throughout the entire window making process - from the initial cross cutting, to fourside planning, glazing bead moulding, to frame cramping, sanding, finishing, assembling and finally to the fitting of the completed windows. The main machines can be linked together to one communication centre which is essential for a well-organized workflow.

Customer support

We are very much aware of what it means to integrate new machinery into your existing manufacturing process.
The SOUKUP service team will take care of the installation, commissioning and training of your operators up until the time they are familiar with all the specific technical details.
We will support you in future operations within the window manufacturing process in order for you to get the best use from our quality products.
An instant helpline provided by our aftersales service team provides local support in all countries throughout the world - making SOUKUP your reliable partner.

SOUKUP
WOODWORKING MACHINERY

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