POLITECNICO
MILANO 1863

How to use the scroll saw

Labora model making

Contents

Allowed materials

Soft solid wood (obece, linden, balsa)
up to a maximum thickness of 40 mm

Solid hardwood (walnut, beech, mahogany)
up to a maximum thickness of 30 mm

MDF up to a maximum thickness of 30 mm

Plywood up to a thickness of 20 mm

Plastic sheets (forex, methacrylate and polycarbonate) up to a thickness of 10 mm

Profiles for model making
(wood, plastics, aluminium, brass and copper)

Forbidden materials

Expanded plastic materials

Profiles and **plates of steel** and **ferrous metals**

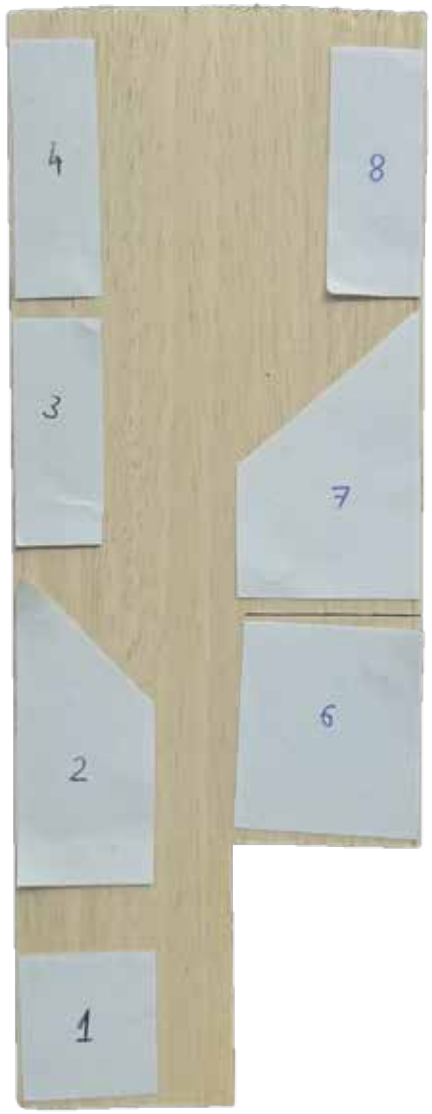
Sheets of **glass**, **plaster**, **cement** and **stone**

Cutting setup

On the board, **draw the outline of the pieces** to cut or **apply paper shapes** of the correct size.

Use removable double-sided tape to avoid leaving glue on the wood.

The cut will leave an uneven surface and may be inaccurate; for this reason, **cut at a distance of about 1 mm** from the outline and then use the sander to finish the piece and bring it to the correct dimensions.

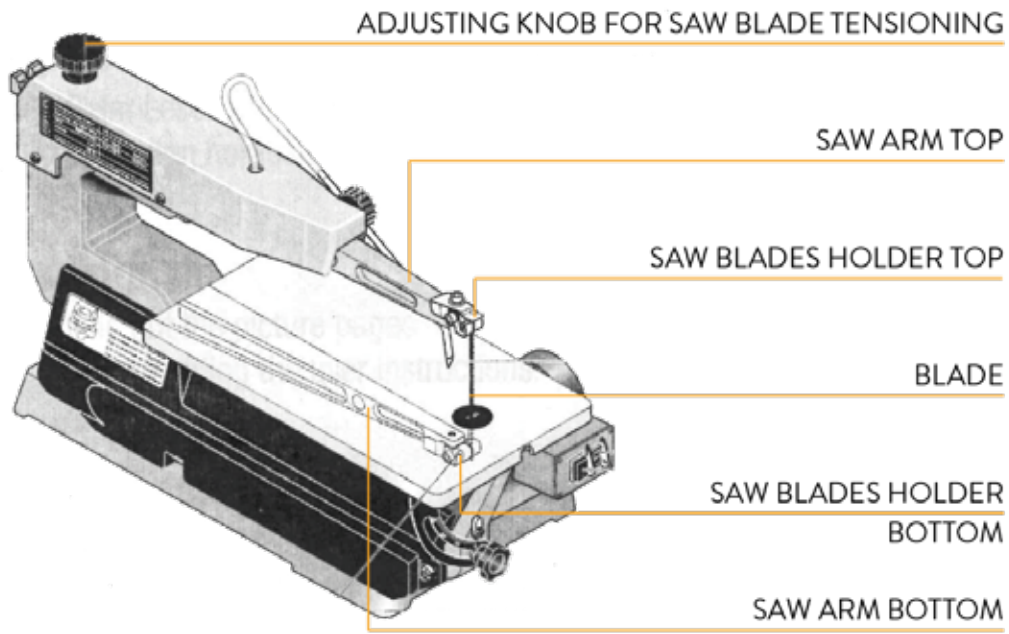


Before switching on the scroll saw

Read carefully the signage displayed in the Drilling lab.

Check the integrity of the blade. If you notice any irregularities, tell the staff.

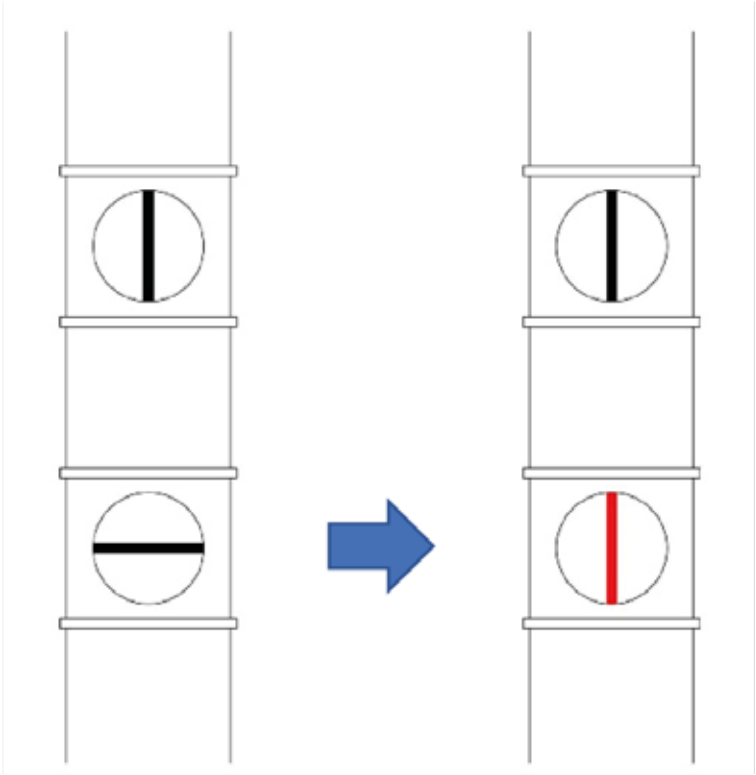
If necessary, you can modify the standard configuration of the scroll saw by changing the angle of the plane and/or securing any guides.



Activation of the aspiration system

Switch on or check that the dust aspiration system is active: **OPEN** and **START** switches in position **I** and wait for the green light to appear.

Open the lower shutter, located on the suction pipe in correspondence to the machine you want to use, turning it to a vertical position.



Switching on the scroll saw

To activate the blade oscillation, press the **ON/OFF (I/O)** switch located on the front right side of the machine. The VEL. switch allows you to vary the blade oscillation speed. For woodworking, **it must be in position I** (slowest) to allow the blade teeth to saw the wood more accurately.

Cutting

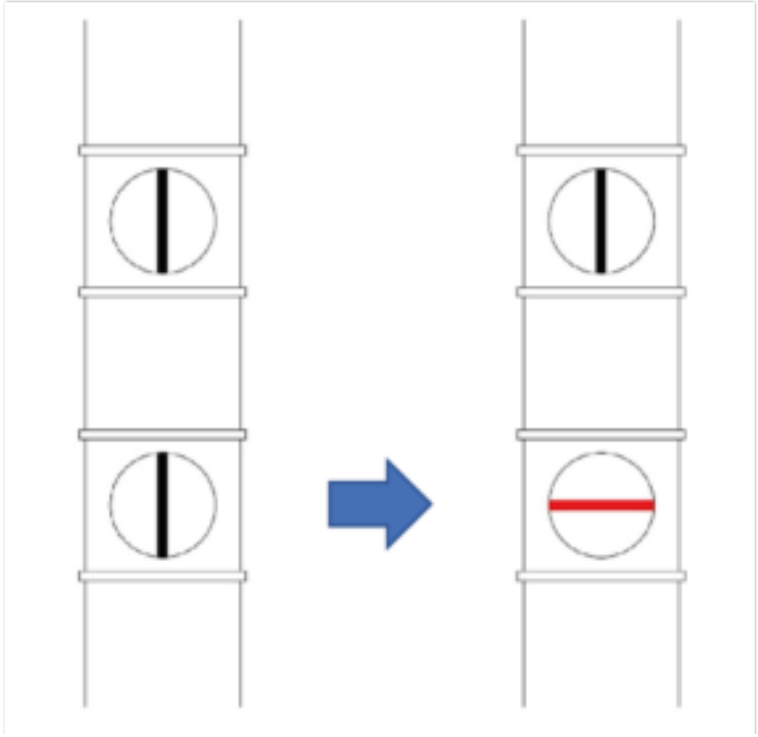
To start the cut, move the piece towards the scroll saw blade, **holding it firmly** with both hands. At the same time, press the piece against the plane to prevent the blade's teeth from lifting it, which could lead to the breaking of the blade itself.

At the end of the cutting

- **Switch off the scroll saw**. Never leave your workstation while the machine is running**.**
- **Restore the standard configuration**: leave the scroll saw work plane in a horizontal position and remove any guides.
- **Clean the cutting area:** remove any wood scraps and throw them in the appropriate container. Remove any residual dust from the scroll saw and the surrounding area using the flexible suction pipe, which should only be used for sawdust.

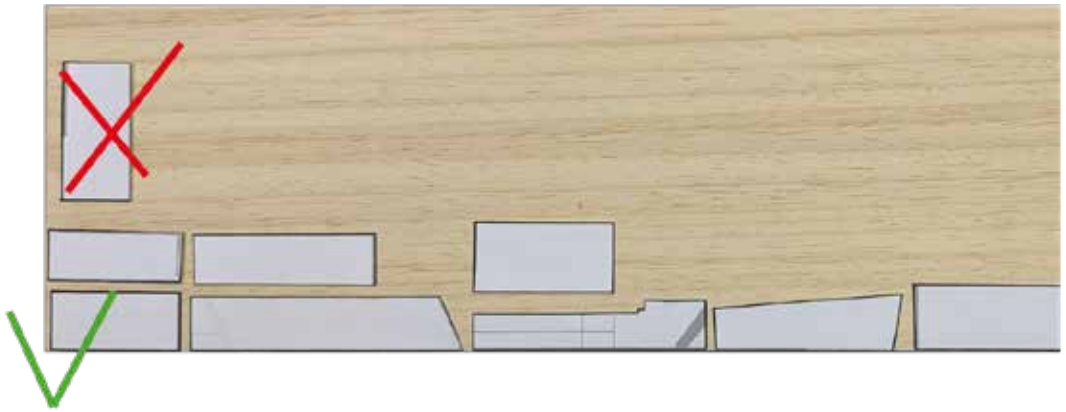
Shutting down the aspiration system

Close the lower shutter, located on the suction pipe in correspondence to the machine that you used, turning it to a horizontal position.



Reset the OPEN and START switches on the dust aspiration system.
Leave the system switched on if other scroll saws or sanders are in operation.

Cutting of urban context



If you need to cut several pieces, we recommend cutting out the shapes from a printed drawing and applying them directly to the board with **removable double-sided adhesive tape** at a distance of **2 or 3 mm** from each other to allow the blade to pass through and optimize the number of cuts to make.

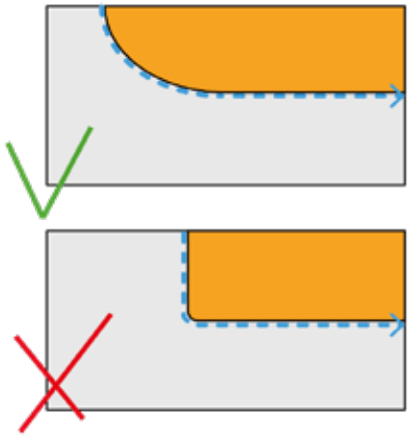
For a better aesthetic result and **greater resistance of the piece**, apply or draw the shapes on the board with the **long side parallel to the grain of the wood**.

If the board has straight, smooth edges, we recommend applying the templates close to the edges, so that you do not have to sand them on that side afterwards.

Cutting of curved shapes

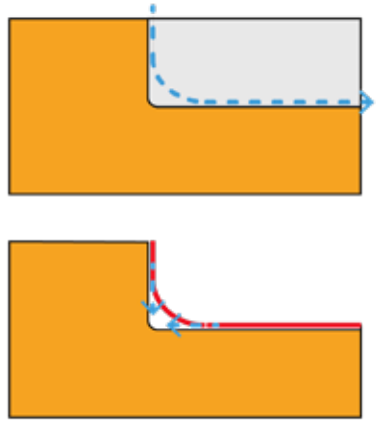
If you need to **cut curves with a radius greater than 10 mm**, you can **rotate the board slowly** as you move forward.

Reduce the pressure of the piece against the blade to prevent twisting or breakage.



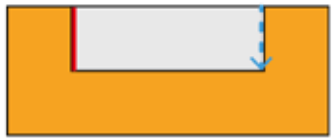
If the piece has curves with a **radius under 10 mm**:

- in the case of **external corners**, first cut the shape with the edges and then round it by sanding;
- if the piece has a round surface on internal corners, make an initial cut with a wider curvature and then finish the internal corner first with the scroll saw, then manually with a cylindrical file.

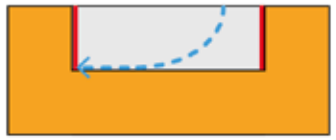


Cutting of U shapes

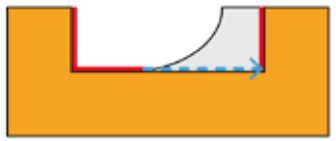
- Cut until you reach an internal edge; with the blade still moving**, pull it out by moving the piece backwards** along the same path, holding it firmly;



- Make a similar cut to reach the **second corner;**



- Make a **curved cut to reach the side** perpendicular to the two previously cut sides and stop at the corner;

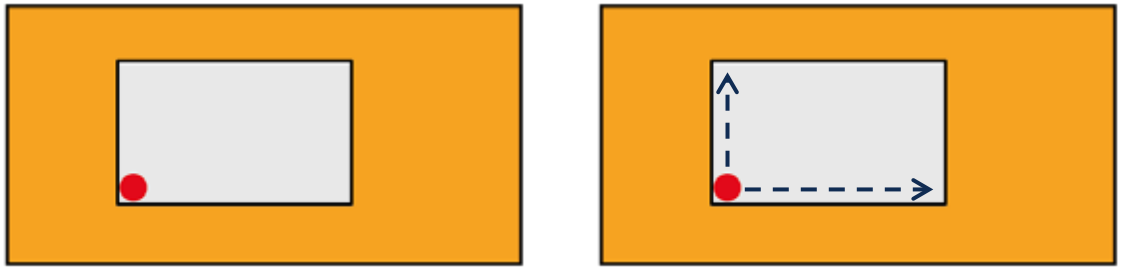


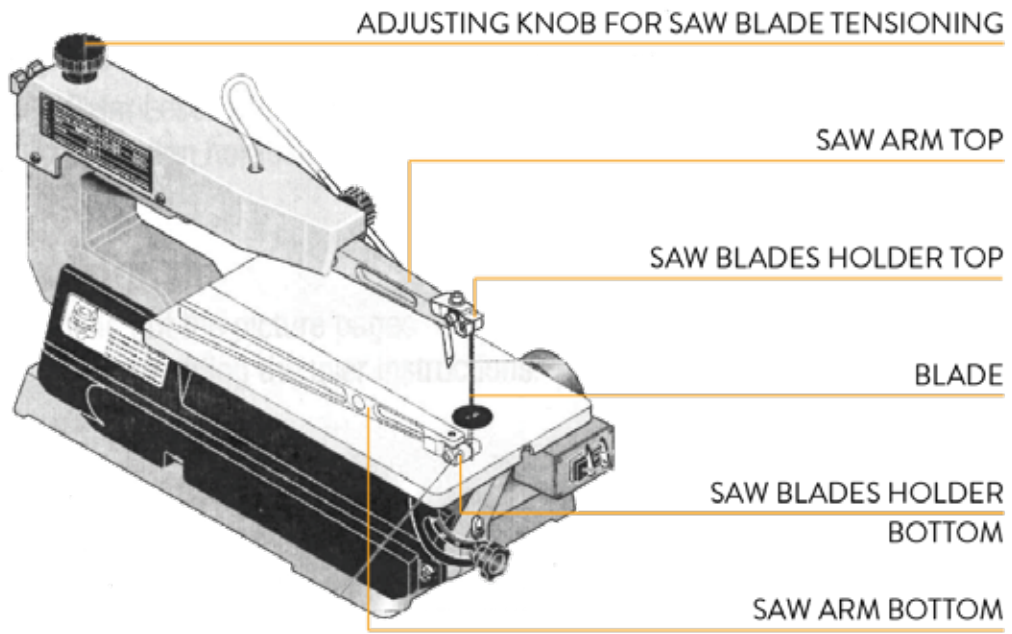
- **Turn off the scroll saw** and **remove the scrap piece;**

- **Turn on the scroll saw** and complete the cut on the **perpendicular side**.

Cutting of internal holes

- To make holes inside a piece, **make a hole with the drill press** with a bit of **at least 6 mm in diameter**.
- When the machine is off, **turn the blade tension adjustment knob counterclockwise**.
- Keep the top saw arm down and **remove the blade from the blade holder.**
- **Insert the blade** into the hole in the workpiece.
- **Put the blade back** into the upper blade holder and **tighten the knob** until the blade is tensioned.
- **Proceed with cutting the hole** and then **remove the piece** following the instructions above.





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