



POLITECNICO
MILANO 1863

How to use the hot wire

Labora model making

Contents

Allowed materials	3
Before turning on the hot wire	4
Activation of the aspiration system	5
Switching on the hot wire	6
Cutting of foam	7
Set the cutting temperature	8
Cutting of internal holes	9
Cleaning the wire	10
At the end of the cutting	11
Shutting down the aspiration system	12

Allowed materials

Expanded plastics: **polyurethane foam**,
polystyrene, expanded polystyrene

Forbidden materials

Laminated expanded plastic sheets, such as
Poliplat and Kapa

Rigid plastics

Poly-laminated plastic sheets

Before turning on the hot wire

Read carefully the signage displayed in the Small Wood Lab.

Check the integrity of the wire. If necessary, modify the standard hot wire configuration by changing the angle of the wire and/or securing any guides. If the wire is damaged, notify the staff who will fix it for you.

At the end of the process, remember to replace the wire to its neutral position.



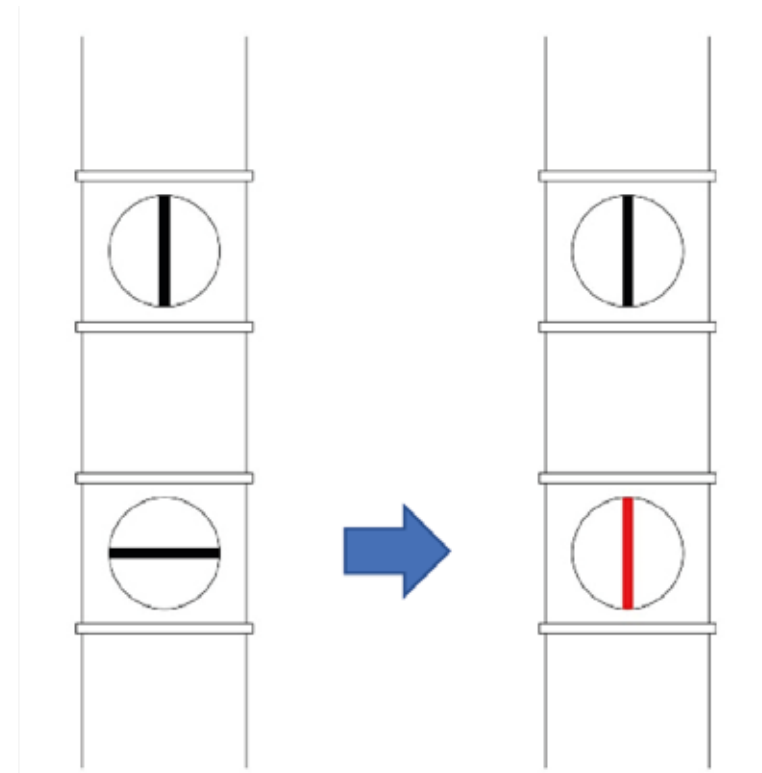
Types of hot wires available in the lab

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 hot wire

To activate the hot wire, press the **ON/OFF switch (I/O)** located on the side of the machine and **adjust the temperature** according to the **density of the material**.



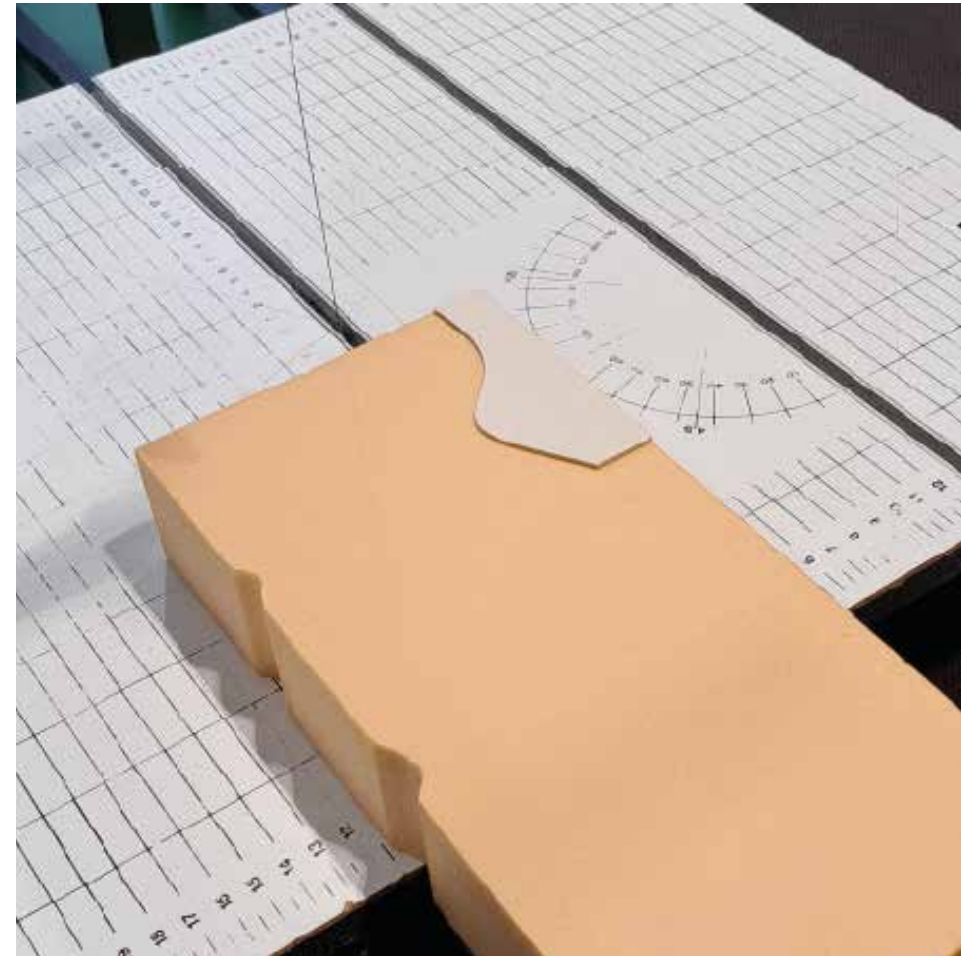
Cutting of foam

Place the piece of foam on the working surface and move it against the wire, **maintaining the speed as steady as possible**.

Any change in speed causes the plate to melt unevenly, resulting in an **uneven cutting surface**.

To do so, **when cutting simple shapes**, use the guides on the machines.

For **more complex ones**, cut the shapes on a carboard (at least 1mm thick) and apply that to the foam with double-sided adhesive tape. During cutting, follow the perimeter of the carboard: **the wire will just cut the foam below**.



Set the cutting temperature

To **set the correct wire temperature** and allow the cutting of the foam at a uniform speed, we suggest you to do a **cutting test** first.

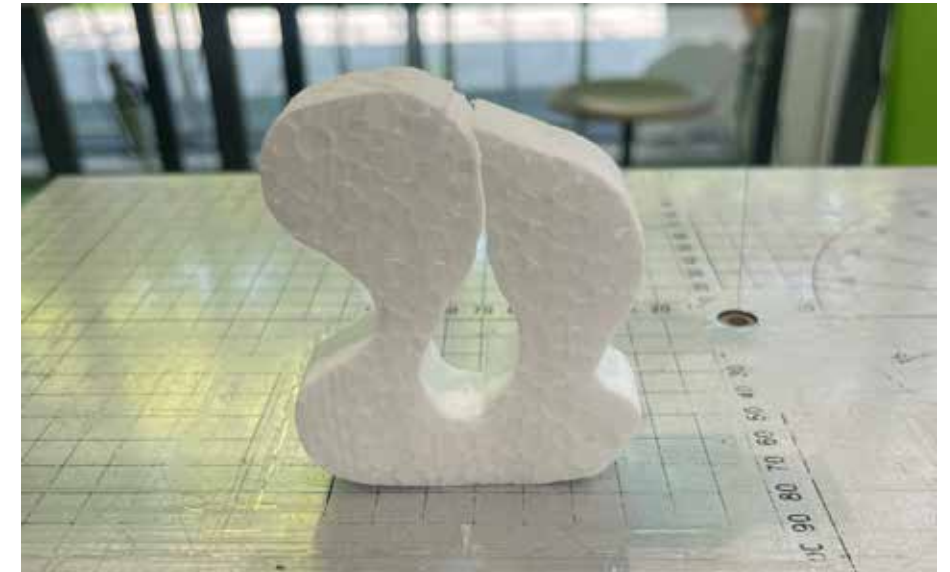
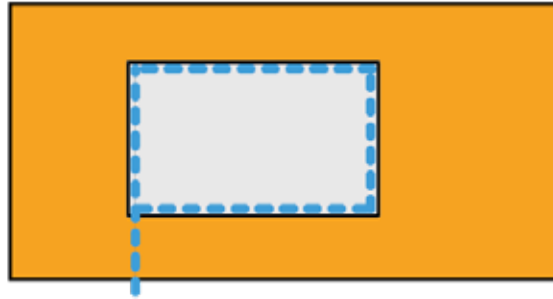
If you set an **inadequate temperature**, you will have to apply too much pressure on the wire, that will **tend to flex, losing its perpendicularity** to the working surface, generating **cuts that are out of square**.



Cutting of internal holes

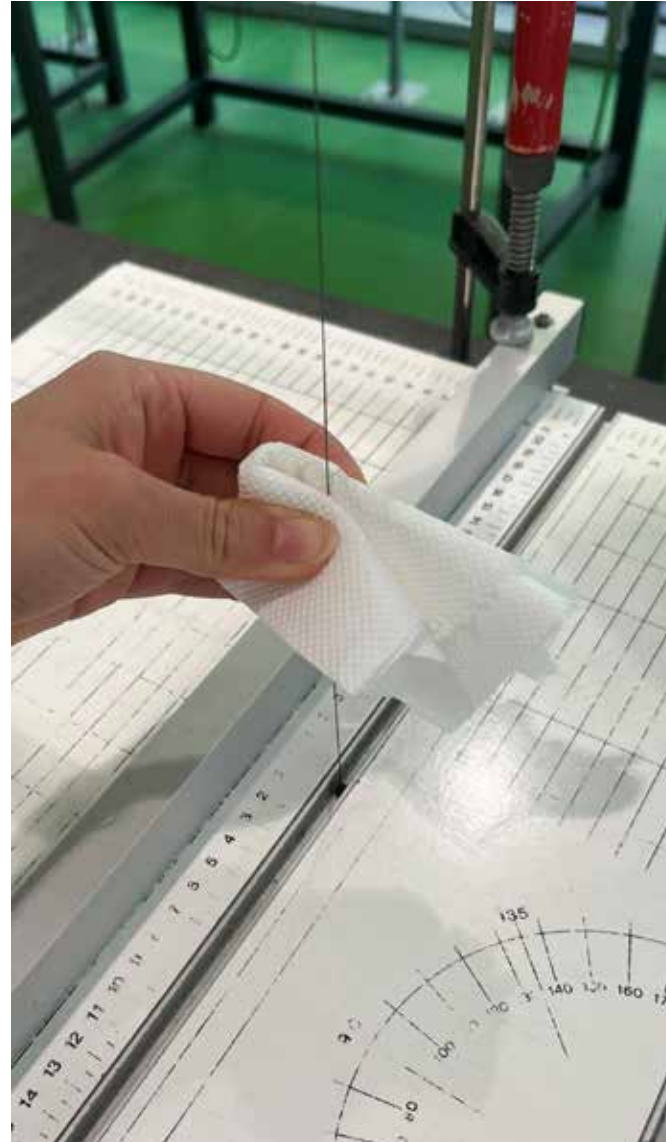
If you need to make holes, **you can't unhook the thread and insert it into the material to complete the cutting.**

The hole itself will necessarily be connected to the cutting of the outer edge of the piece.



Cleaning the wire

To prevent the material leftovers on the wire from melting at the end of the cut, generating smoke, and compromising the quality of the next cut, **clean the wire with absorbent paper** while the machine is on, **paying attention not to burn yourself**.



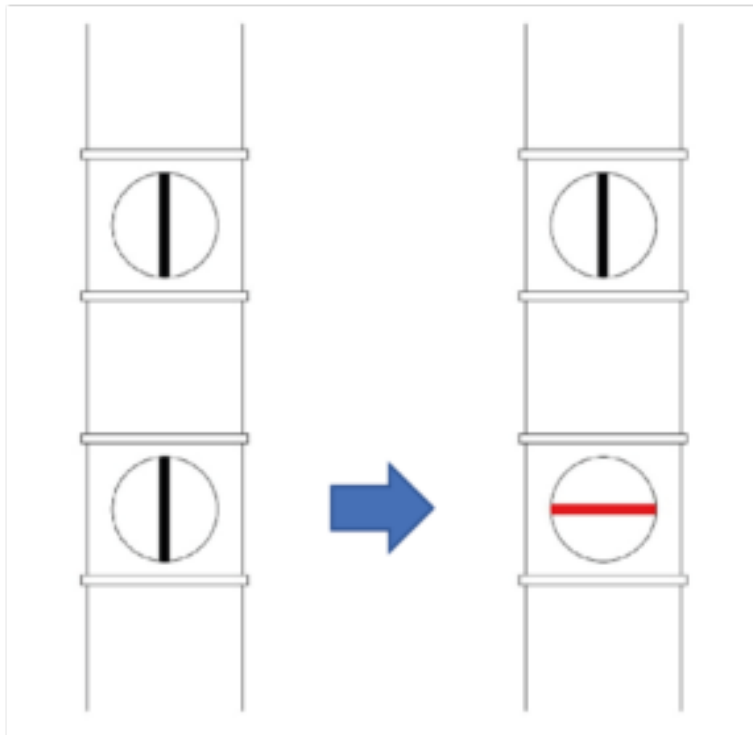
At the end of the cutting

- **Switch off the hot wire:** never leave your workstation while the machine is still on.
- **Restore the standard configuration:** move the wire back in a neutral position (perpendicular to the plan) and remove any guides.
- **Clean the cutting area:** remove any foam scraps and throw them in the appropriate container located in the room. Remove any residual foam leftovers from the hot wire and the surrounding area.



Shutting down the aspiration system

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



Reset the two OPEN and START switches on the dust extraction system.

Leave the system switched on if other hot wires are switched on.





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