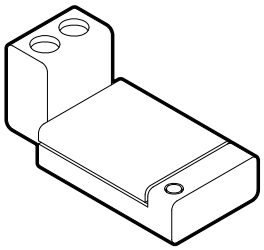


MACHINES

LASER CUTTER

It makes very very precise fretworks. It cuts and engrave not-too-thick slabs of different material.

DIFFICULTY

user friendly
trained use
expert

COST

<100€
500 - 1000€
>2000€

PROS
- Simple to use and fast.
- Works on different materials.
- Easy to design connections and joints.

CONS
- Limited size and thickness.
- Some materials aren't recommended because they could produce toxic smoke.

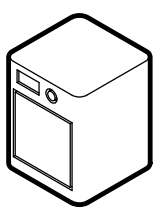
IN DETAIL

A laser cutter uses a highly focused light to melt or burn away a small amount of material, to dived the part from the rest of the slab or to engrave the surface. It is one of the most easier machine to use and faster to prototype, it works well for final products as well.

MATERIALS
It can cut and engrave thin wood, acrylic, paper, cardboard, fabric, leather. It can't cut metal, glass or PVC.

SKILLS NEEDED
- Basic knowledge of CAD design.
- New model usually comes with user friendly interface and integrated library material for correct settings.
- There are online free generators of accessories that can be produced with the laser, no need of 2D design skills.

SET UP CONSTRAINS
- Desk version tend to occupy most of table space.
- It must be connected to an air extractor (a separate unit, almost same size).
- Most machines needs an attached computer to operate the machine.
- Better if placed close to a window for general air ventilation.



MACHINES

3D PRINTER

It's a machine that creates object stacking layers together, the same way a thick book is made by a lot of thin pages.

DIFFICULTY

user friendly
trained use
expert

COST

<100€
500 - 1000€
>2000€

PROS
- Easy to use and learn.
- Complex geometries.
- Robust parts.
- Colorful artifacts.

CONS
- Quite slow.
- Producing small parts (less than 25*25*25cm).
- Producing one color and material at a time.

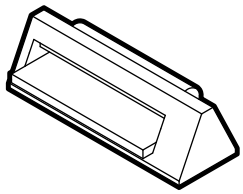
IN DETAIL

The machine create a physical version of a 3D virtual model. In the process, the model is sliced in thin layers and the machine draws these layers with some sort of solid material. Layer by layer the entire object is created. It allows creating complex geometries in different materials.

MATERIALS
Most material are thermoplastic polymers (PLA, ABS, PETG, PA). Very colorful but they suffer environmental conditions like temperature, humidity and UV.

SKILLS NEEDED
- Good knowledge of the technology to understand and solve errors on the prints.
- New model usually comes with a plugin&play interface and integrated settings library.
- There are online free repository for 3D model, no need of 3D design skills.

SET UP CONSTRAINS
- Once started the machine cannot be moved. Prints can last even days.
- Faster machines usually vibrate a lot. Consider it when placing on a table with other people or machines.



MACHINES

VINYL CUTTER

A practical and fast plotter for cutting sheet-like surfaces. Mainly used for stickers, painting, masks and textiles.

DIFFICULTY

- user friendly
- trained use
- expert

COST

- <100€
- 500 - 1000€
- >2000€

PROS

- Simple to use and fast.
- Cheap material.
- Perfect for making transfer stickers.

CONS

- Limited material range.
- Small details are difficult to render.
- Composite works requires a bit of manual labor.

IN DETAIL

A vinyl cutter uses a sharp blade mounted over the moving head of a plotter machine. In this way, it can cut over sheet-like materials re-creating a vector image in very little time. Useful for product customizations, vinyl cutter are cheap and easy to maintain, and materials can be easily bought in bulk.

MATERIALS

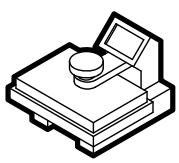
Any thin sheet-like material could be cut. Adhesive vinyl, thermo transfer sheets, copper spool are the most commons.

SKILLS NEEDED

- Basic knowledge of 2D vectorial design program.
- Manual skills required to detached the artwork from the sheet.
- There are online free generators of accessories that can be produced with the laser, no need of 2D design skills.

SET UP CONSTRAINS

- Desk version tend to occupy most of table space.
- Most machines needs an attached computer to operate the machine.
- Consider the machine could produce event meters long sheet. Better to place it at the table's edge.



MACHINES

HEAT-PRESS

Used to transfer vinyl graphics onto textiles. It applies controlled heat and pressure to create durable, high-quality designs on fabric.

DIFFICULTY

- user friendly
- trained use
- expert

COST

- <100€
- 500 - 1000€
- >2000€

PROS

- Easy to operate.
- Fast operations (less than 60 seconds).

CONS

- Limited footprint.
- Take time to reach the temperature.
- Potentially harmful.

IN DETAIL

The heat press is designed to apply vinyl graphics onto textiles through controlled heat, pressure, and time. The process fuses the vinyl's adhesive layer to the fabric, creating durable, wash-resistant designs. Ideal for producing custom t-shirts, bags, and other personalized textile items.

MATERIALS

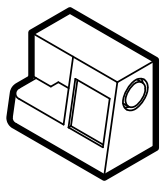
Use only certified materials for thermo-transferable purposes (the same used on the vinyl cutter).

SKILLS NEEDED

- No IT competences.
- Just few buttons to set temperature and time.

SET UP CONSTRAINS

- It produces a lot of heat in the air! Make sure to have enough space around to avoid burning people or other tools.
- Needs to be place on a table.



MACHINES

SEWING MACHINE

Reliable, durable sewing machine perfect for a wide range of projects, with easy-to-use features and quality stitching.

DIFFICULTY

- user friendly
- trained use
- expert

COST

- <100€
- 500 - 1000€
- >2000€

PROS

- Saves time and effort.
- More precise and uniform stitching.
- Wide range of stitches and decorative options.

CONS

- Requires maintenance and regular cleaning.
- Intimidating for beginners to learn how to use.
- Noisy.

IN DETAIL

A sewing machine is a versatile tool for both beginners and experienced sewers. It typically features a variety of stitch options, adjustable speed control, and a automatic needle threader. With an easy-to-use design and durable construction, it can handle a wide range of sewing projects with precision and efficiency.

MATERIALS

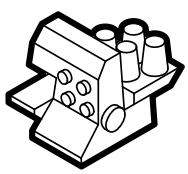
Fabrics and even heavy-duty ones could be sewed by any regular machines. Cotton and polyester threads are preferred.

SKILLS NEEDED

- Understanding of basic sewing techniques and terminology.
- Hand-eye coordination for precise work.
- Ability to troubleshoot common issues, such as tangled thread or skipped stitches.

SET UP CONSTRAINS

- The machine use a foot pedal to be operated. Consider it when positioning around the machine.
- Although the machine dimension are quite small, a bigger space around is useful when sewing longer fabrics.



MACHINES

OVER-LOCKING

A more specialized and professional sewing machine used to create strong and secure finished edges on fabrics.

DIFFICULTY

- user friendly
- trained use
- expert

COST

- <100€
- 500 - 1000€
- >2000€

PROS

- Professional and neat finish on fabric.
- Can cut and finish edges in one step.
- Prevent fabric fraying.

CONS

- Difficult to set up.
- More expensive.
- Take some practice to get the hang of using it.
- Noisy.

IN DETAIL

An overlocking machine is a specialized sewing machine used for creating neatly finished edges on fabric. It trims the edges, encloses them with thread, and prevents fraying. It is commonly used in garment construction and provides a professional and clean finish to seams and hems.

MATERIALS

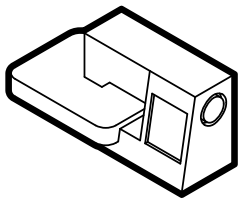
Use only certified materials for thermo-transferable purposes (the same used on the vinyl cutter).

SKILLS NEEDED

- Familiarity with threading the machine correctly.
- Ability to adjust tension settings for different fabrics.
- Understanding of how to cut and finish fabric edges.
- Knowledge of different stitch options and when to use them.
- Attention to detail for precise sewing.
- Ability to troubleshoot and fix any issues that may arise during sewing.

SET UP CONSTRAINS

- The machine use a foot pedal to be operated. Consider it when positioning around the machine.
- Although the machine dimension are quite small, a bigger space around is useful when sewing longer fabrics.



MACHINES

EMBROIDERY MACHINE

Highly efficient CNC machine that creates intricate designs with precision and speed. Ideal for textiles and fashion industry.

DIFFICULTY

- user friendly
- trained use
- expert

COST

- <100€
- 500 - 1000€
- >2000€

PROS

- Detailed designs.
- High volumes in brief times.
- Consistent and uniform results.

CONS

- High initial purchase cost.
- Requires maintenance.
- Limited flexibility in design options.
- Noisy.

IN DETAIL

An embroidery machine is a computer-controlled machine that uses needles and threads to create intricate embroidery designs on fabric. It operates by following a digital pattern or program, allowing for precise and detailed stitching. These machines are commonly used in the textile industry for mass production of embroidered products.

MATERIALS

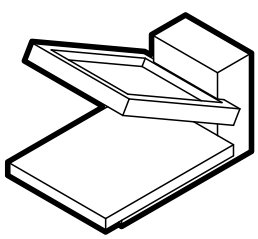
Cotton and synthetic no-stretchy fabrics are the most used as canvas. Only polyester threads are used in the embroidery process.

SKILLS NEEDED

- Proficiency in computer software.
- Knowledge of different types of fabrics and stitches.
- Ability to troubleshoot machine malfunctions.
- Knowing how to thread machine properly.

SET UP CONSTRAINS

- The machine has a moving frame that need larger space than the machine footprint.
- Basic frontal manual operations are needed.
- No foot pedal and no computer while operating.



MACHINES

SCREEN PRINTING

A versatile method of printing designs onto fabric using a mesh screen and ink, creating vibrant and durable textiles.

DIFFICULTY

- user friendly
- trained use
- expert

COST

- <100€
- 500 - 1000€
- >2000€

PROS

- Cost-effective for larger volumes.
- Ideal for bold and graphic designs with crisp lines.

CONS

- Time-consuming and labor-intensive process.
- Required setup can be complex and require specialized equipment.

IN DETAIL

Screenprinting is a technique used to print designs and graphics onto textiles such as t-shirts, hoodies, and bags. The process involves creating a stencil, known as a screen, which allows ink to pass through onto the fabric below. Each color in the design requires a separate screen, making it ideal for multi-color prints. Screenprinting provides vibrant and long-lasting results, making it a popular choice for custom clothing and merchandise. The versatility of this method allows for a wide range of textures and effects to be achieved, making it a favorite among designers and artists.

MATERIALS

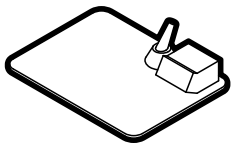
Specific emulsion and ink are used for creating and using the screen on fabrics.

SKILLS NEEDED

- Manual skills required.
- Understanding of printing techniques.
- Knowledge of photo editing digital tools.

SET UP CONSTRAINS

- Sturdy, level surface for printing table
- Space for drying racks
- Storage for screens and supplies
- Access to water source for cleaning screens and tools

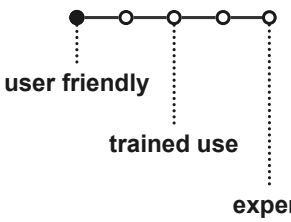


MACHINES

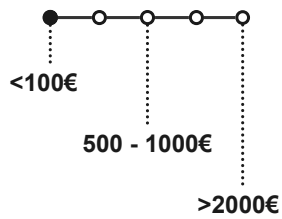
SOLDERING STATION

A tool used for soldering electronic components, providing a controlled heat source and often featuring adjustable temperature settings.

DIFFICULTY



COST



PROS

- **Compact and portable.**
- **Affordable.**
- **Heat up quickly and maintain the temperature for long.**

CONS

- **Not suitable for heavy-duty or tiny components.**
- **Possible errors are permanent and non-reversible**

IN DETAIL

A soldering station for small electronics is an essential tool used for attaching and connecting electronic components to circuit boards or wires. It provides a controlled heat source necessary for melting solder, a metal alloy used to create electrical connections. These stations often come equipped with adjustable temperature settings to ensure precision and prevent damage to delicate components. With features like interchangeable tips, safety features, and ergonomic designs, soldering stations are designed to make the soldering process efficient and effective for small electronic projects.

MATERIALS

Cotton and synthetic no-stretchy fabrics are the most used as canvas. Only polyester threads are used in the embroidery process.

SKILLS NEEDED

- **Manual skills**
- **Hand-eye coordination for precise work.**

SET UP CONSTRAINS

- **A stable desk surface top.**
- **Could be produced some smoke. A well ventilated area or an air extractor could be useful.**