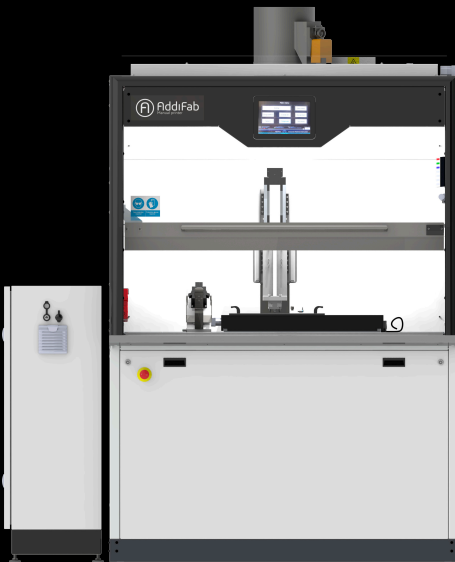




# Freeform Injection Molding

- the most versatile 3D-printing platform



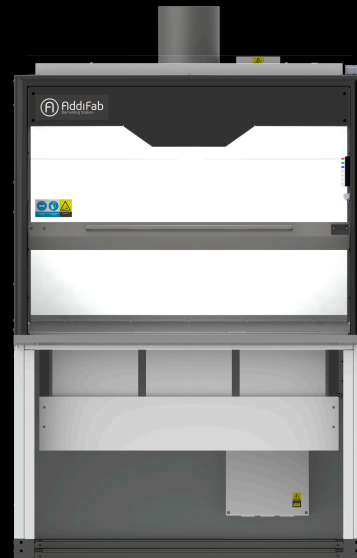
**3D-Printer**



**Lab bench**



**Cleaning station**



**Demolding station**

# Freeform Injection Molding (FIM)

Freeform Injection Molding enables you to work swiftly and iteratively with hardware development, prototyping, testing and low-volume manufacturing - on the same platform.

The FIM process starts with the 3D-printing of injection molding tool inserts. These mold inserts serve the same function as the cavities in conventional metal molds. They are filled with regular feedstocks using conventional injection molding machines, normally ranging from 5 to 400 tons of closing pressure\*.

Following injection molding, the molded parts may be de-molded in various ways. Dissolving mold cavities is a core enabler in the AddiFab FIM process, that allows injection molding with the design freedom known from 3D-printing. For more simple geometries, a mechanical ejection of the molded parts is also an option, which permits repeated use of the printed cavities.

The FIM platform is the only 3D-printing platform that allows you to work with injection molding from day 1 and in the entire range of injection moldable materials, i.e. thermoplastics, LSRs, TPEs, glass/carbon-filled, metals (MIM) and ceramics (CIM).

The Freeform Injection Molding process from AddiFab:



\*The FIM process is compatible with any standard injection molding machine in the market. If you don't have a molding unit already, we can suggest some...

# Printer – AFU5

The AddiFab 3D-Printer performs the first step in the FIM process. It is a high-end DLP system that allows the printing of components, with a x/y resolution of 50µm (10µm optional) and 20-200µm z-layers (10µm optional). The machine is built for repetitive printing of injection mold inserts and can deliver objects with a precision of 50 µm or better.

The 3D-Printer features an automatic ventilated cabinet, automated resin supply, a high-precision build plate holder and a patent-pending build system that combines high-speed printing with high precision control over layer height. The system is compatible with the entire range of 3<sup>rd</sup> party printer resins and optimized for use with the AddiFab IM2.0 printed tooling resin range

## Dimensions:

AFU5 – Printer unit (0.9 x 1.5 x 2.4 meters) excl. Controller box (0.3 x 1 m), *which may be placed to the side or the back of the machine.*



# Lab Bench – PFU1

Following printing, the printed inserts need to be removed from the printer build-plane. After the cleaning stage, the inserts will be post-cured in either a UV flasher or an oven.

AddiFab provides a ventilated work lab bench that allows the user to handle the inserts in a controlled environment. All our cabinets are regulatory tested (Fume Hood guidelines) and have stainless steel surfaces. The cabinets all have active VAV, airflow guides and are easy to maintain.

## Dimensions:

PFU1 – Auxiliary lab bench (0.9 x 1.5 x 2.4 meters)



# Cleaning Station – PFU2

Cleaning of parts using Isopropanol is an important step in the process of manufacturing high-quality printed mold inserts. To assist the user preparing the inserts for injection molding, AddiFab is providing a ventilated cleaning station that supports sufficient cleaning and by that, enables the high and repeatable quality levels, associated with using FIM.

The cleaning station comprises two automated, programmable vats with integrated lifting action, and two additional vats for rinse-off.

The station is prepared for ATEX approval, and all vats drain into tanks placed below the worktable, to promote operator safety.

## Dimensions:

PFU2 – Cleaning station (0.9 x 1.5 x 2.4 meters)



# De-molding Station – PFU3

After cleaning and injection molding, the printed cavities are de-molded. When using the unique removal process only enabled by FIM, the cavities are dissolved to release the molded components.

AddiFab provides a ventilated cabinet with a number of vats for the demolding procedure. This way, users may work with the alkaline solvent used in the Freeform Injection Molding process, in a safe and controlled environment.

## Dimensions:

PFU3 – Cleaning station (0.9 x 1.5 x 2.4 meters)

