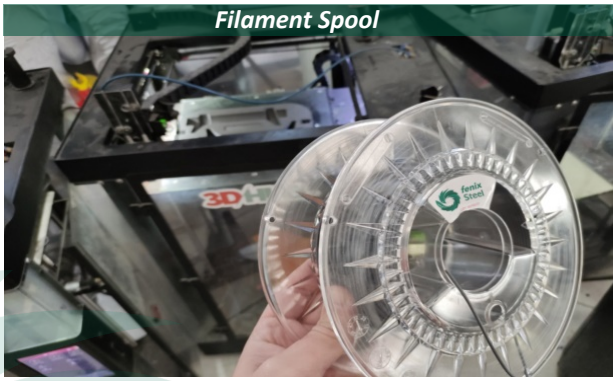
Demonstrator Fact-Sheet
Fenix steel alloy filament spool

FENIX steel alloy filament is winded into plastic spools that can be fitted in any modern FDM 3D Printer. It is obtained from Mechanomade® powders, using primary and ***recycled metals,*** polyethylene binders.

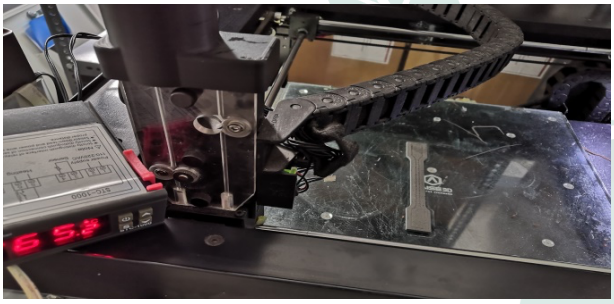
Fused Deposition Modelling (FDM) additive manufacturing process is the most widespread 3D printing processes today due to the low cost of the necessary equipment and the abundance of the feedstock materials.

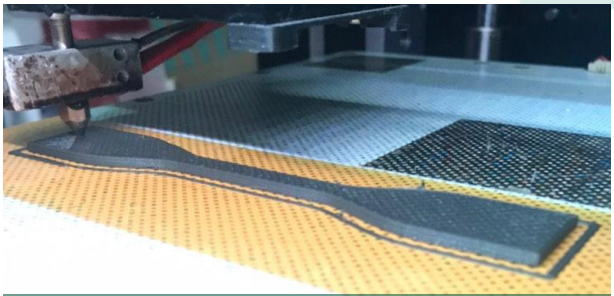


Filament Spool

Printing Setting

		Value
Temperature	°C	220
Bed Temperature	°C	60
Speed	mm/sec	30
Nozzle	ømm	0,80





Dog-Bone speciment, being printed by 2 different printers

Description of its use

Although a simple method, it involves a rather large set of printing parameters that have to be determined for every single material used. Extruder temperature, printing speed, nozzle diameter, retraction distance, layer height are the most critical parameters of the FDM process.

Hundreds of tests have been conducted to determine the appropriate printing parameters that can lead to successful printing results with our filament with a variety of broadly available 3D Printers

Main Characteristic Figures

	Value
Recycled Material	22%
Source of Material	CPUs
Binder Type	HDPE - PE wax
Printing Time	1 hour
Printing Method	FFF/FDM
Debinding Method	Solvent
Sintering Method	Furnace
Weight Loss	15%
Average Shrinkage	20%

Debinding

Apolar solvent debinding, 1h at 90° or 1day at room temperature

Sintering

Full metal sintering at 950°C, in inert or reducing atmosphere supported by alumina sand

Printers

Tested with:

Raise3D N2 & Pro2
Zortrax M200 & M300
Craftbot Plus PRO
Creality CR10 MAX
Ultimaker 3

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More information can be found at : **www.fenix-project.eu** **marketplace.fenix-apps.eu**