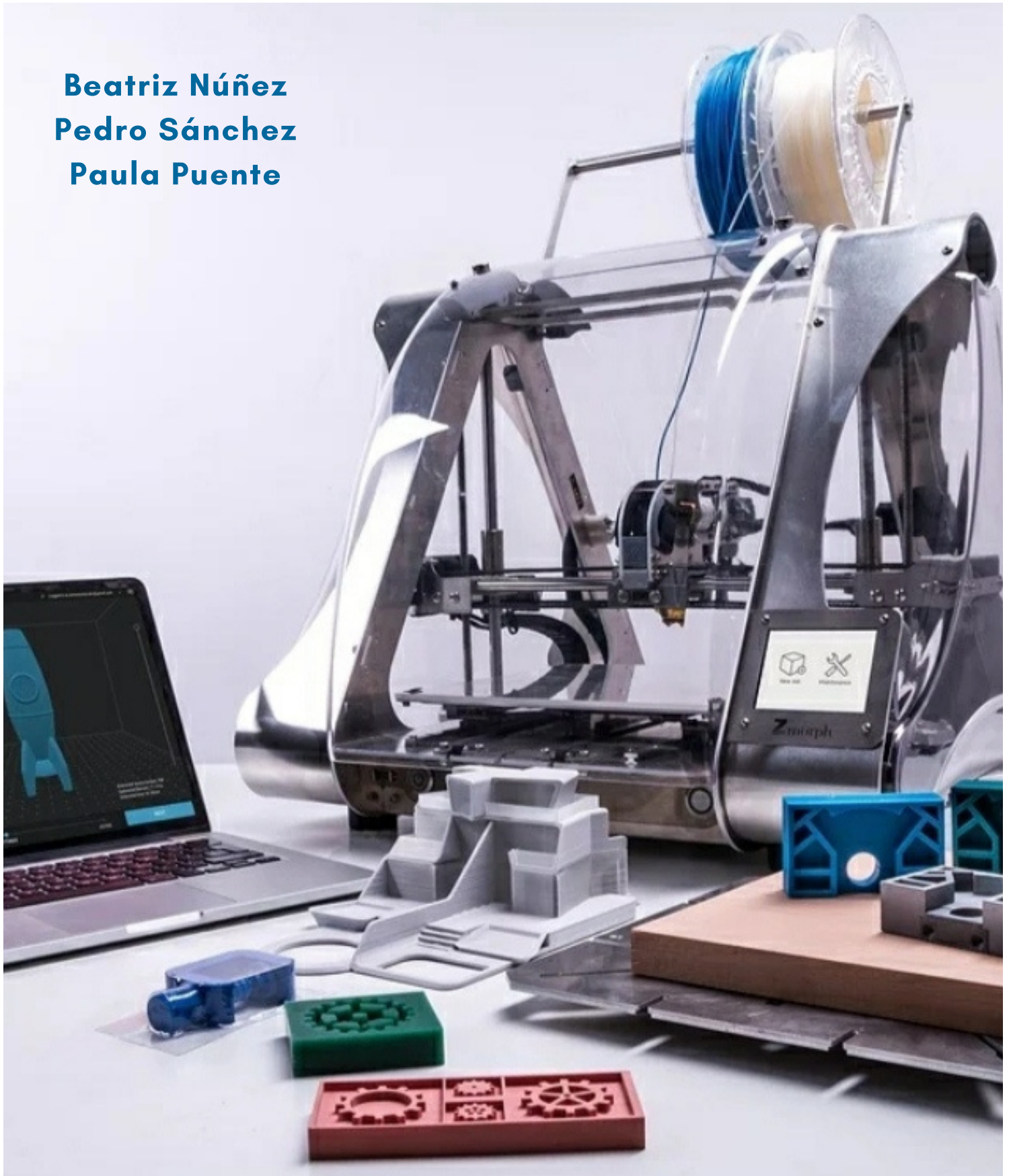


**Beatriz Núñez
Pedro Sánchez
Paula Puente**



**3D PRINTING MANUAL ADAPTED
TO PEOPLE WITH DISABILITIES**

INDEX



1. PRINTER PARTS

2. PRINT FROM SD CARD

3. HOW TO INTRODUCE A NEW FILAMENT

4. EXTRACT THE OLD FILAMENT

5. REMOVAL OF A PRINTED PIECE

6. FILAMENT TYPES

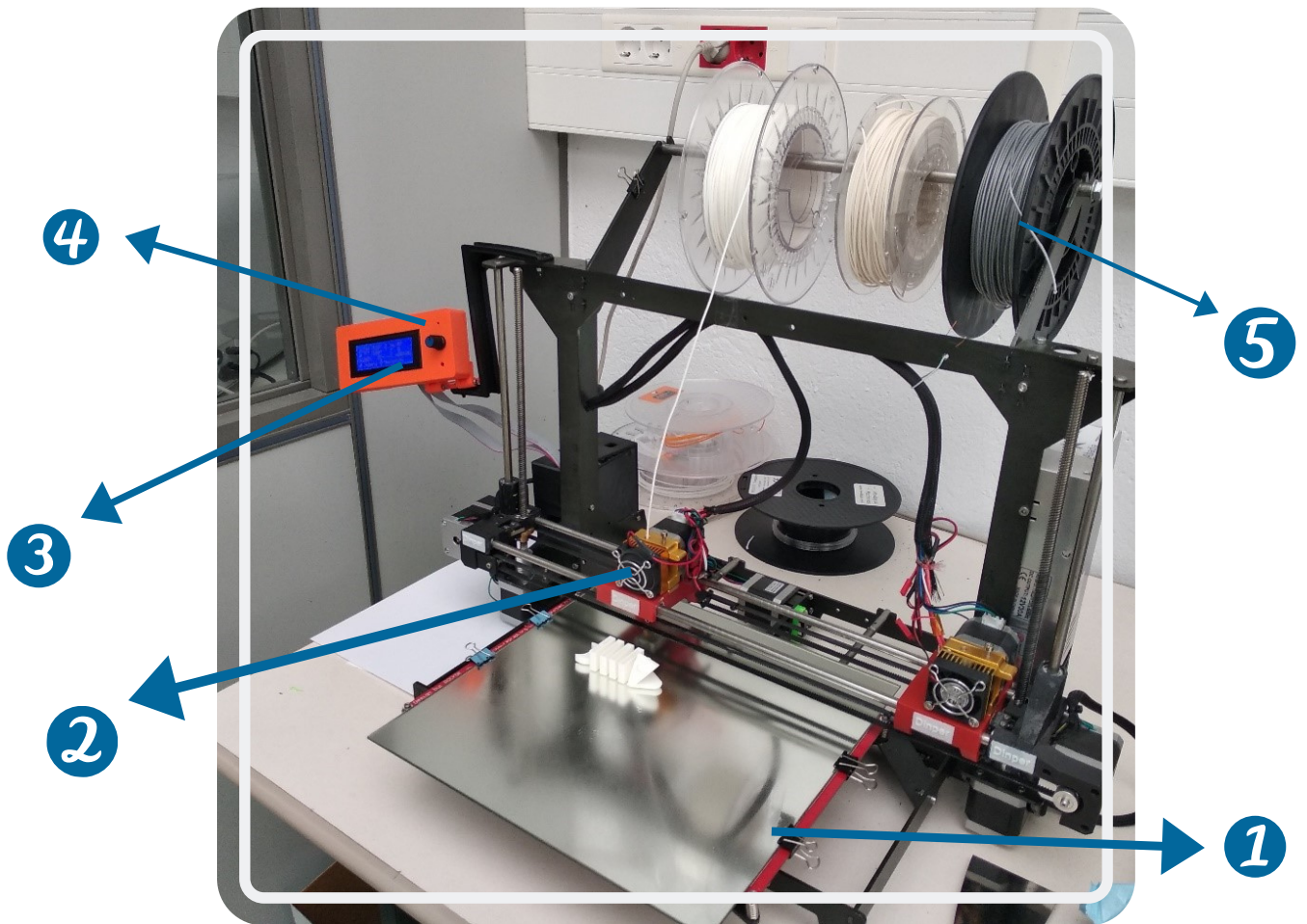
7. GLOSSARY

8. BIBLIOGRAPHIC REFERENCES



PRINTER PARTS

PRINTER PARTS



LEGEND

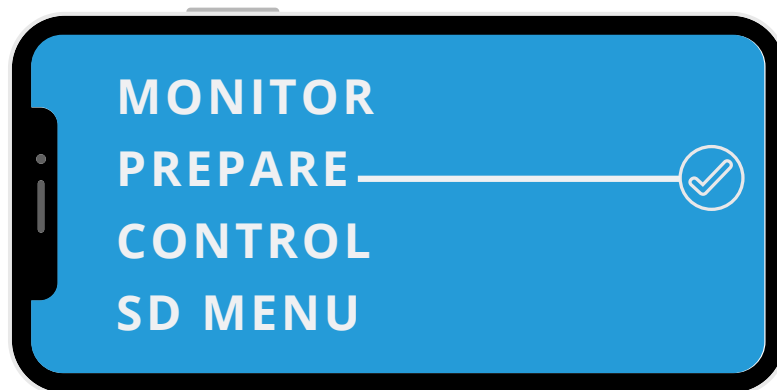
1. BED
2. EXTRUDER
3. LCD SREEN
4. WHEEL MENU
5. FILAMENT SPOOL



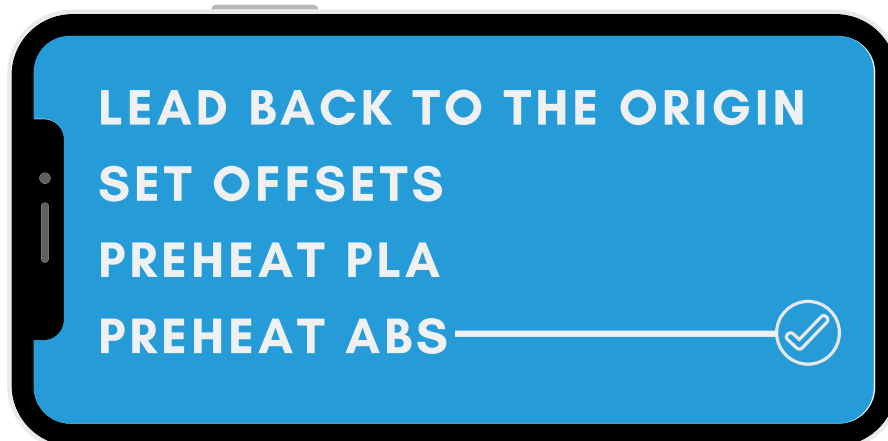
**PRINT FROM SD
CARD**

PRINT FROM SD CARD

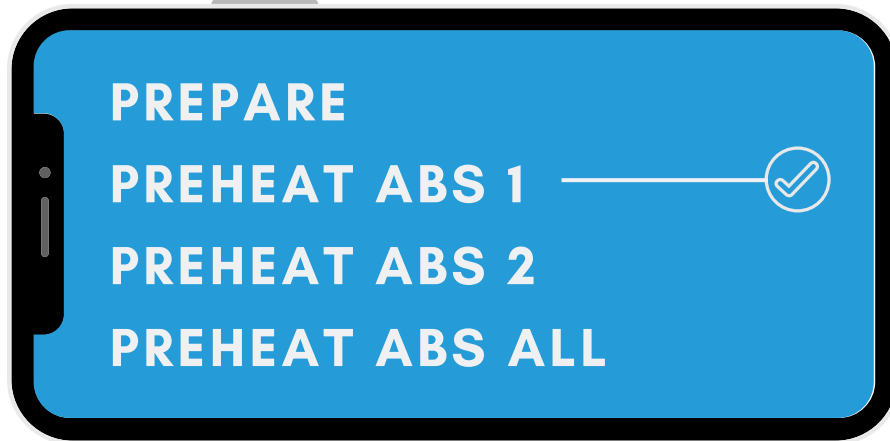
1 SELECT PREPARE



2 SELECT PRE-HEAT ABS



3 SELECT PRE-HEAT ABS 1

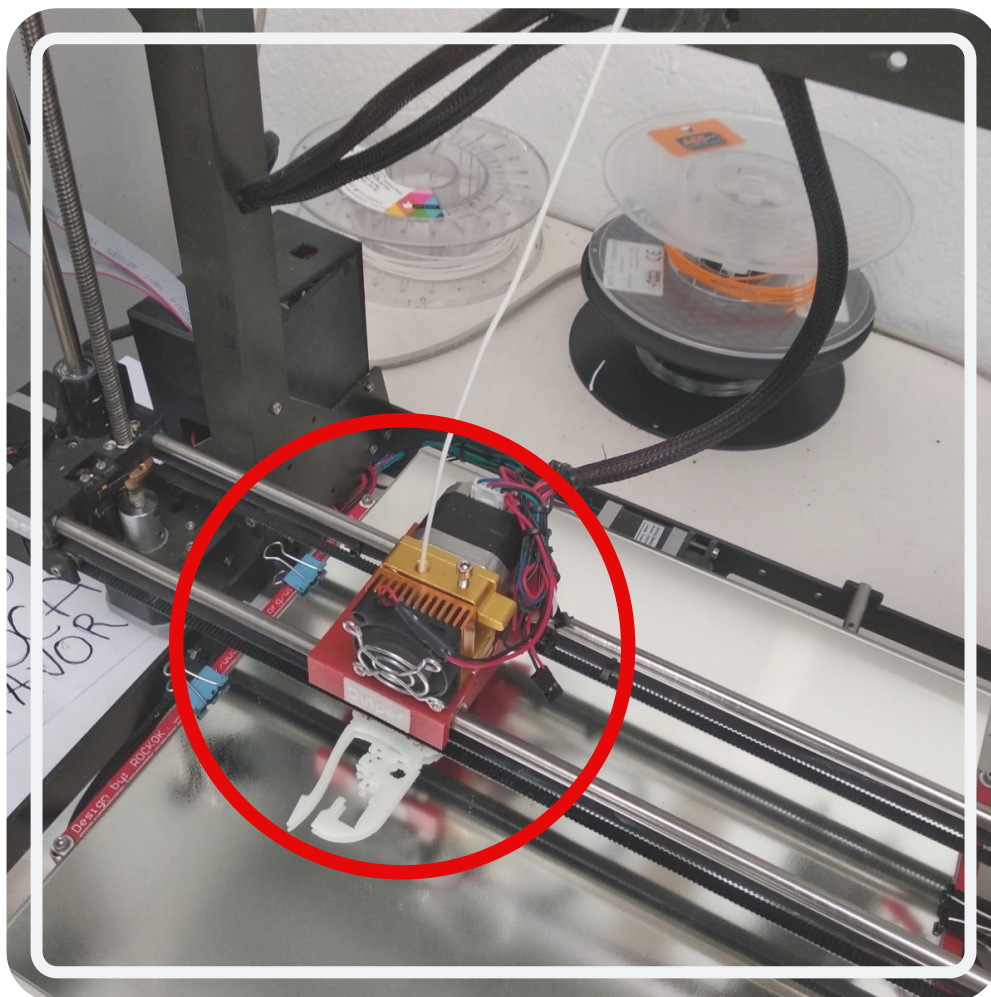


4 SELECT SD MENU



5 SELECT THE FILE TO PRINT

CHECK THE FIRST
LAYERS TO ENSURE
THAT THE START OF
PRINTING IS RIGHT





**INTRODUCING THE
NEW FILAMENT**

INTRODUCING THE NEW FILAMENT

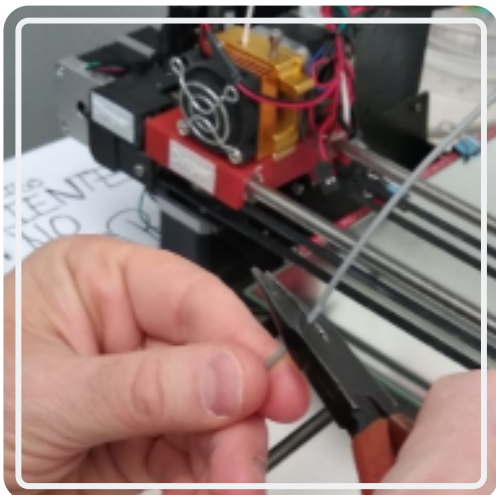
1 CHECK THE BEGINNING OF THE FILAMENT



YOU MUST CUT 3CM
OF THE FILAMENT



YOU CAN PRINT NOW



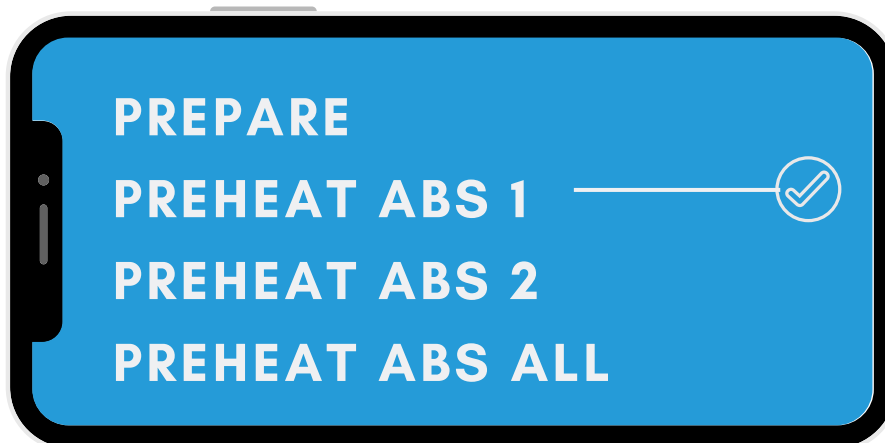
2 SELECT PREPARE



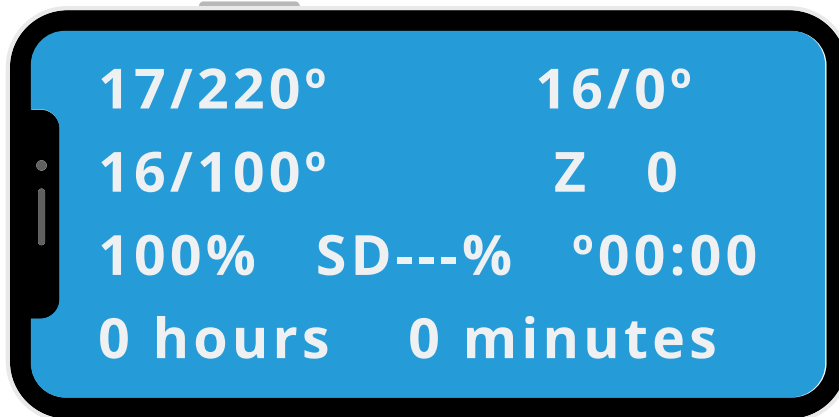
3 SELECT PRE-HEAT ABS



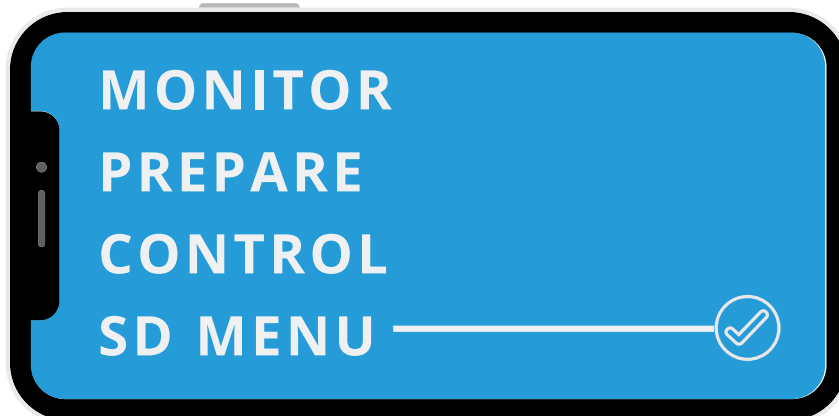
4 SELECT PRE-HEAT ABS 1



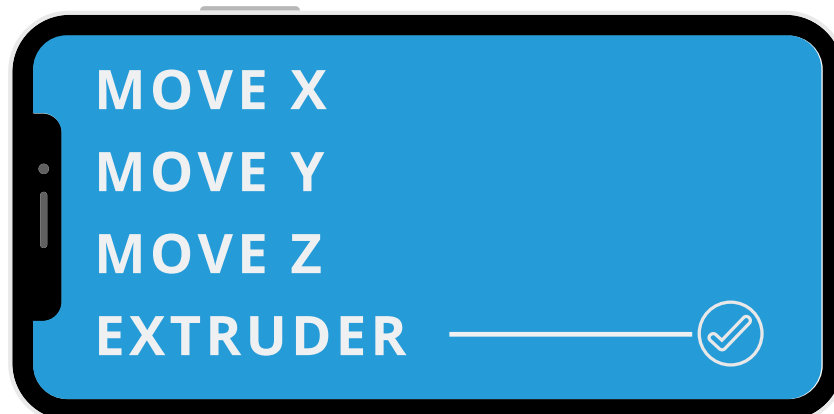
5 WAIT UNTIL THE PRINTER REACHES 220°



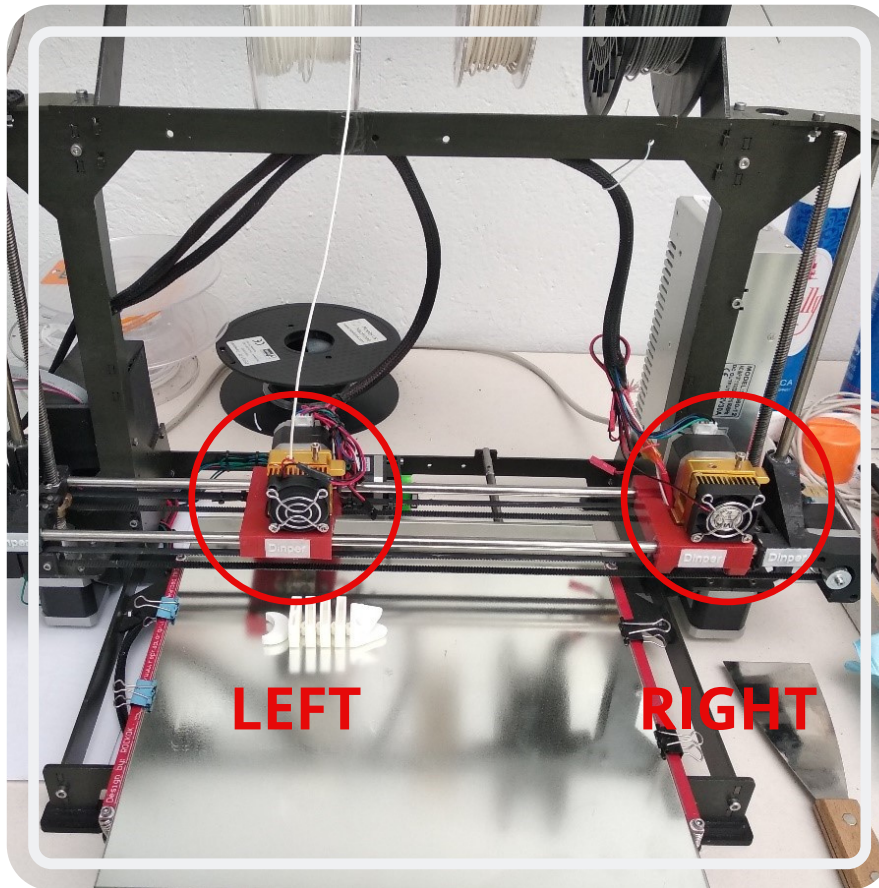
6 SELECT SD MENU



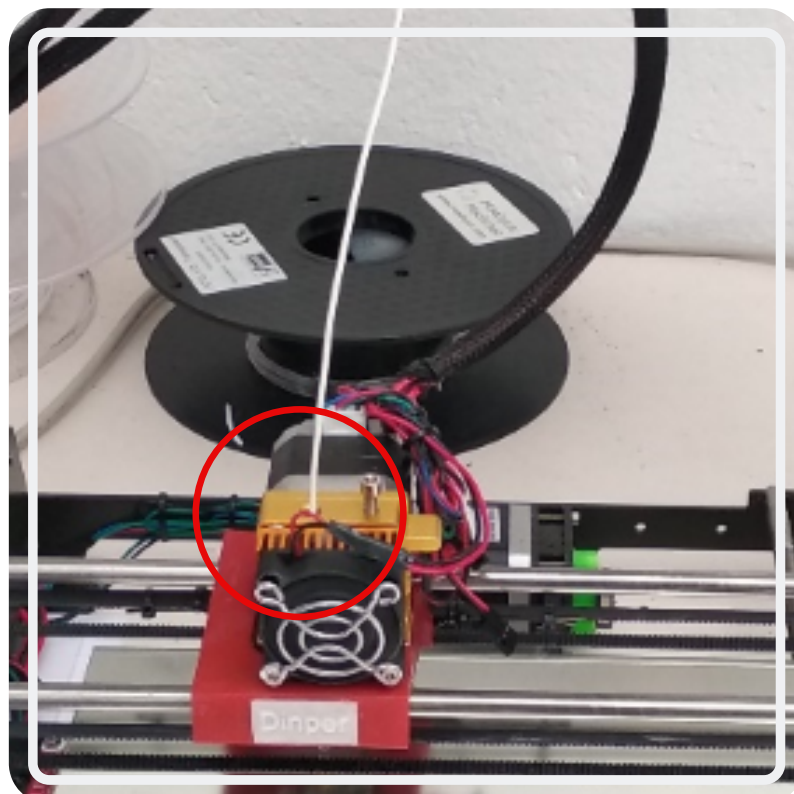
7 SELECT EXTRUDER CONTROL FOLDER



8 SELECT LOAD E0 (right or left extruder is selected)



9 INSERT THE FILAMENT





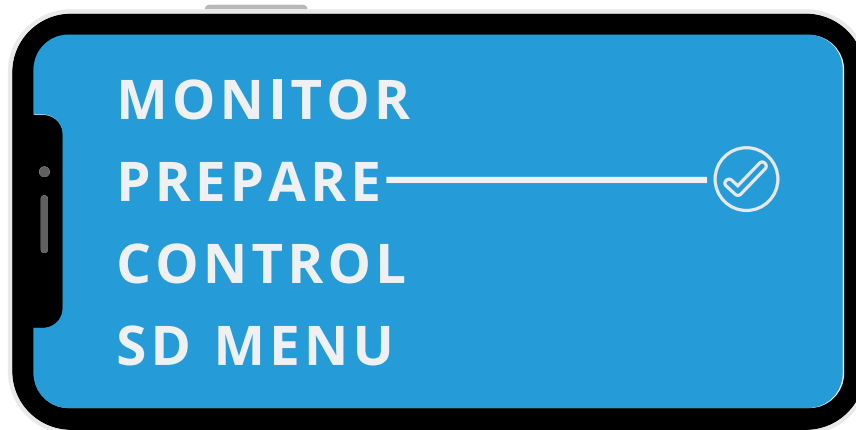
REMOVE

THE OLD FILAMENT

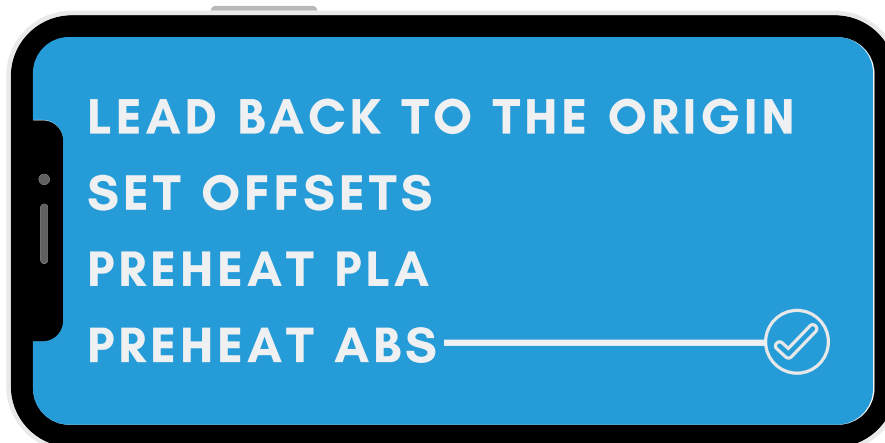


REMOVE THE OLD FILAMENT

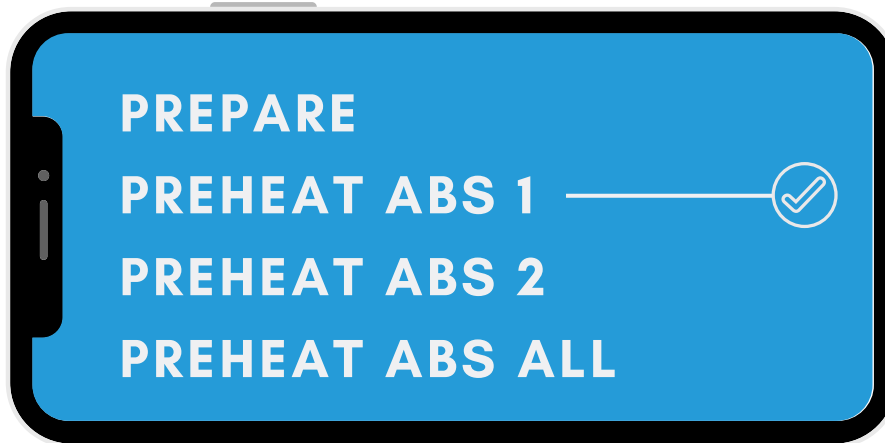
1 SELECT PREPARE



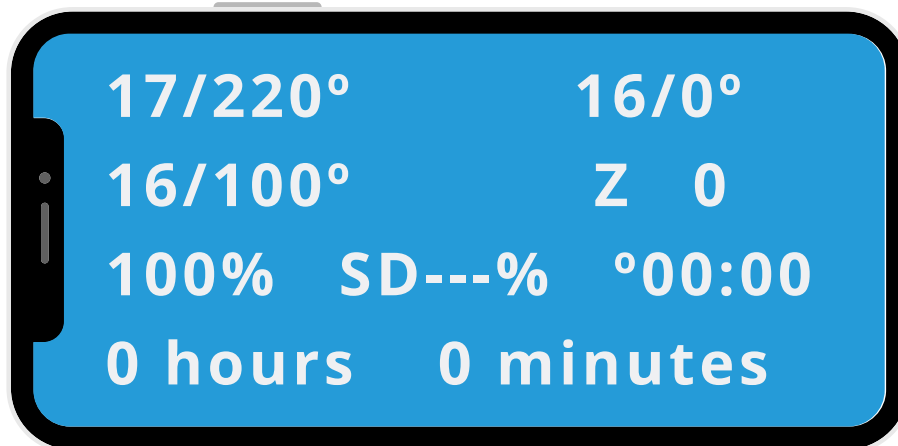
2 SELECT PRE-HEAT ABS



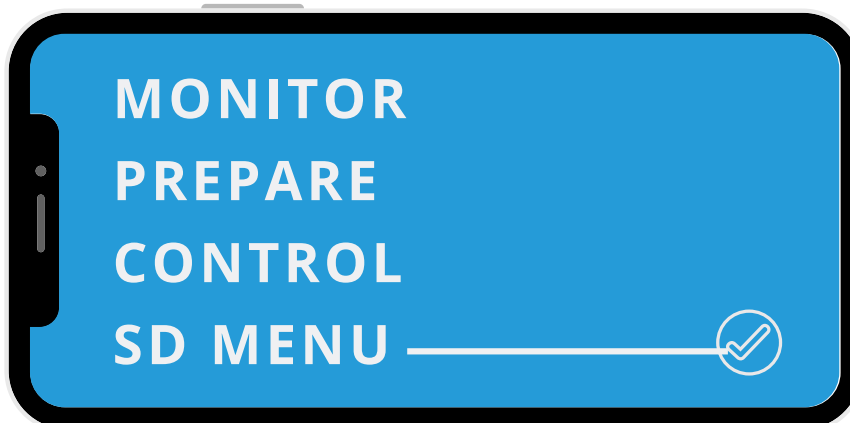
3 SELECT PRE-HEAT ABS 1



4 WAIT UNTIL THE PRINTER REACHES 220°



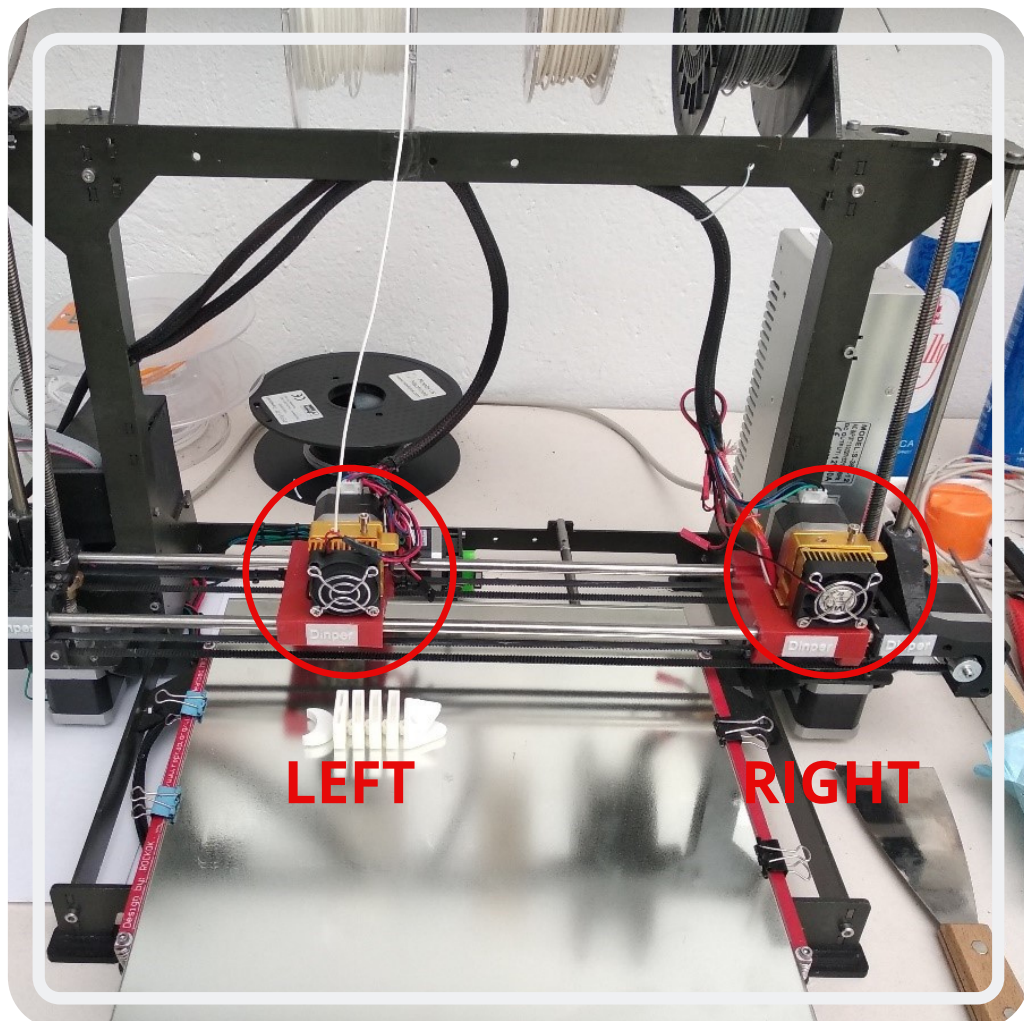
5 SELECT SD MENU



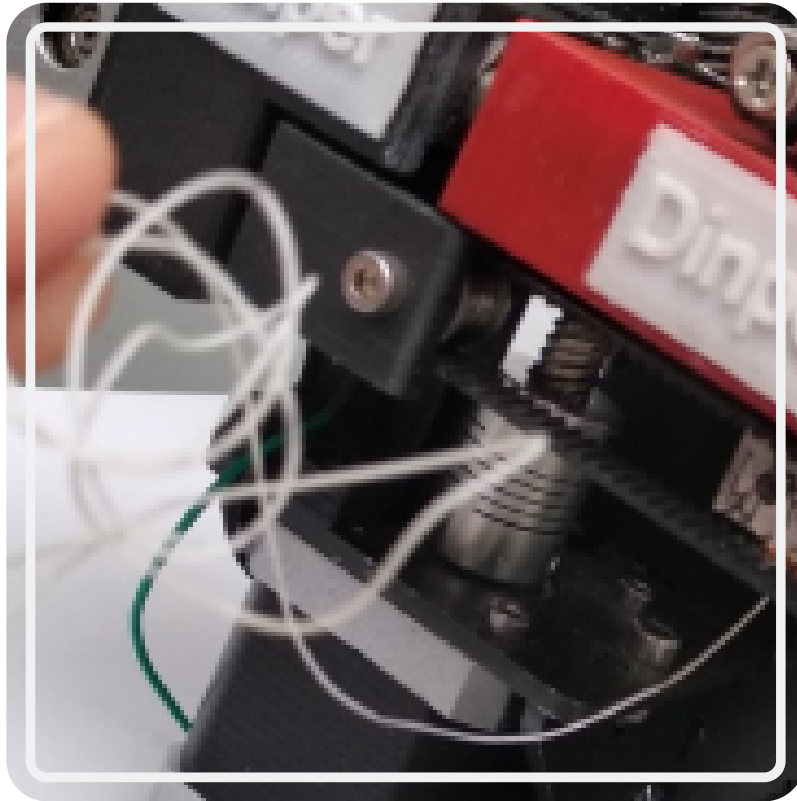
6 SELECT EXTRUDER CONTROL FOLDER



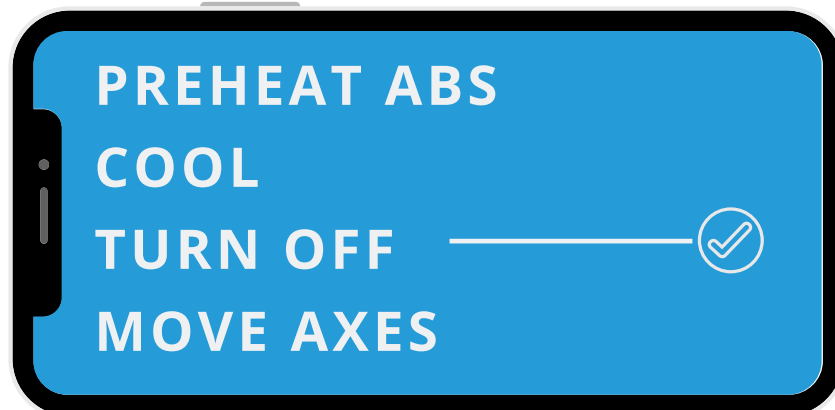
7 SELECT LOAD E0 (right or left extruder is selected)

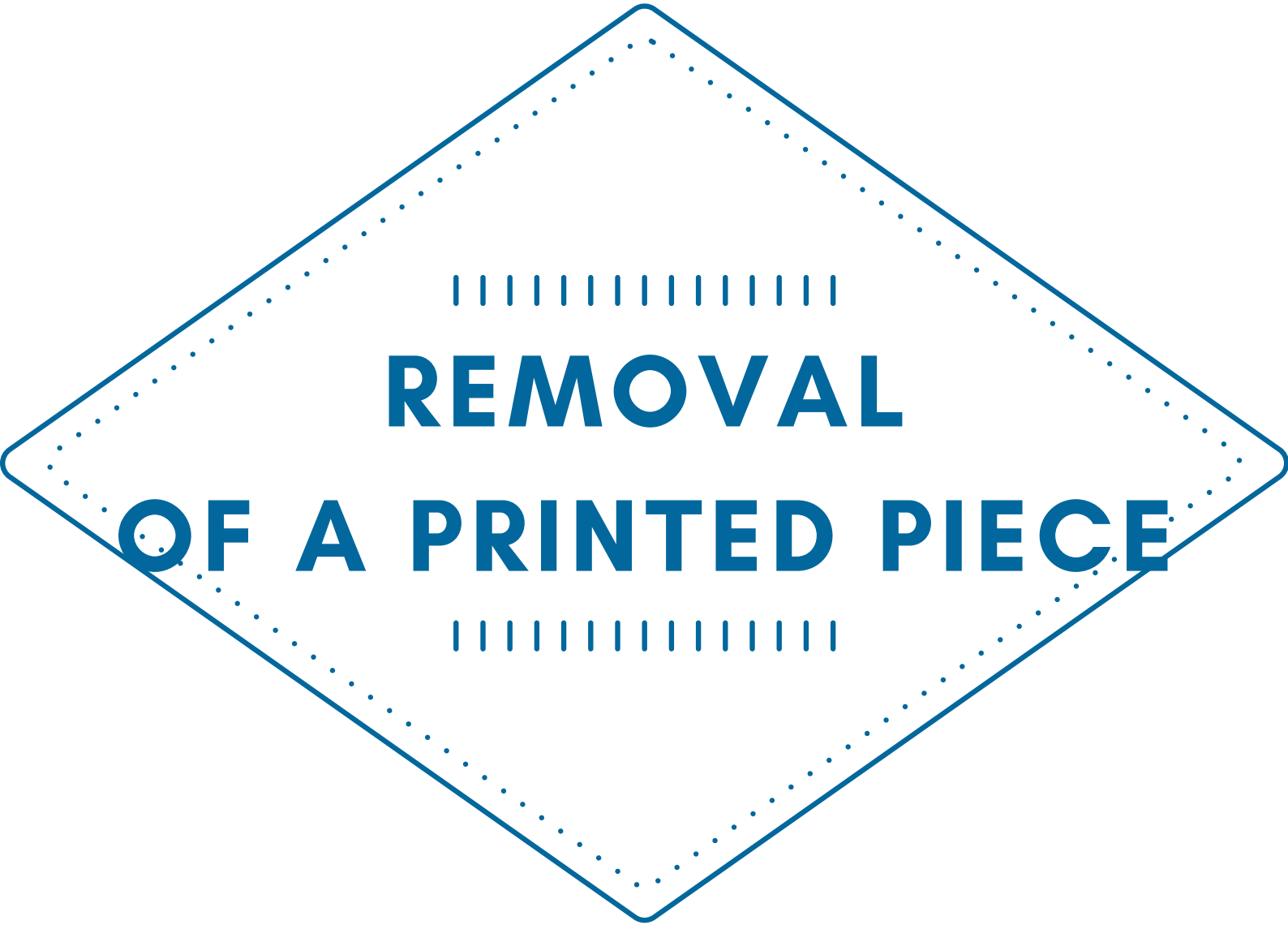


8 WAIT FOR THE FILAMENT TO COME OUT AND REMOVE IT BY HAND



9 TURN OFF THE PRINTER





REMOVAL OF A PRINTED PIECE

1

USE A SPATULA TO REMOVE THE PIECE



2 SPRAY SOME LACQUER WHEN THE SURFACE IS SHINY

3 COVER THE ENGINES WITH A FOIL WHEN SPRAYING THE LACQUER





FILAMENT TYPES

FILAMENT TYPES



PLA OR LACTIC ACID

- MOST POPULAR MATERIAL
- NATURAL ORIGIN
- RECYCLABLE AND BIODEGRADABLE
- NO NEED TO USE A WARM BED
- EXTRUDER TEMPERATURE: 200°C



ABS OR ACRYLONITRILE BUTADIENE STYRENE

- MATERIAL MORE ROBUST THAN PLASTIC
- RESISTANT TO HIGH TEMPERATURES
- HOT BED BETWEEN 60°C AND 80°C
- EXTRUDER TEMPERATURE: 235°C



GLOSSARY





ABS

Acrylonitrile Butadiene Styrene is a thermoplastic used as a 3D printer material. Often ABS is used as a short form, actually referring to filament made of ABS: 'Do you use ABS in your Mendel?' Be careful that sometimes filament sold as ABS is in fact mixed with other thermoplastic, thus altering its characteristics. The melting temperature is 220-230°C, but can be different if the manufacturer has mixed this with other thermoplastics. ABS is soluble in acetone and can be use to smooth the surface of the print-out.



BED

The build plate of the 3D printer on which parts are actually made. Typical materials are aluminium or glass.



EXTRUDE

The act of placing the build material on the build platform, normally by heating thermoplastic to a liquid state and pushing it through a small nozzle commonly referred to as a "hot end".

EXTRUDER

A group of parts which handles feeding and extruding of the build material. Consists of two assemblies: a cold end to pull and feed the thermoplastic from the spool, and a hot end that melts and extrudes the thermoplastic.



FILAMENT

Two uses:

1. Plastic material made into (often 3mm or 1.75mm) string to be used as raw material in 3D printers.
2. Extruded plastic (often < 1mm).



PLA

Poly-lactic Acid. A biodegradable thermoplastic polymer used as a 3D printer material. In many cases compounded with other polymers for become usable. Melting point 150-160°C. The material properties can vary, depending from the manufacture. It has been described as having a slightly sweet scent when melted or printing.



|||||

BIBLIOGRAPHIC

REFERENCES

|||||

BIBLIOGRAPHIC REFERENCES

The Create Education Project Ltd.

<https://www.createeducation.com/help-support/glossary/>



3D PRINTING

2020

PAULA PUENTE TORRE
BEATRIZ NUÑEZ ÁNGULO
PEDRO SÁNCHEZ ORTEGA