03. Build Preparation

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Introduction

This guide will lead you through preparing the ProX 2oo to start running a build. You will also need to read the Lens Cleaning Dozuki for in depth cleaning procedures.

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Step 1 — Build Plate - Cleaning
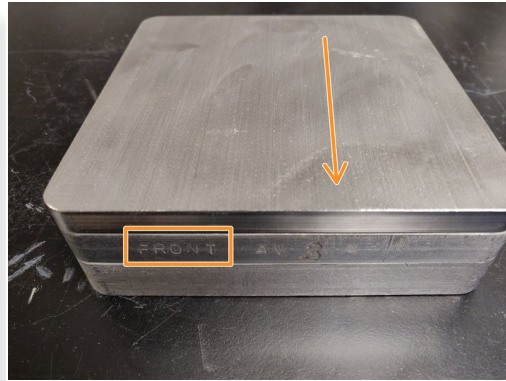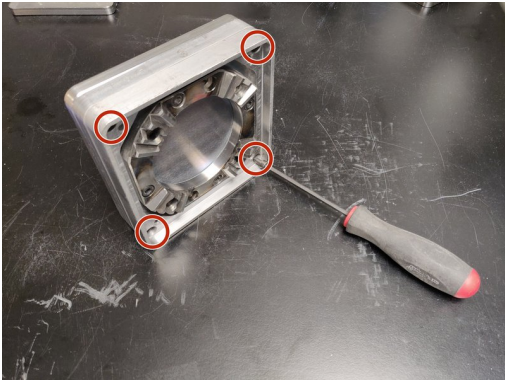
- Attach the build plate to the base plate using (4) 4mm screws
  - ⚠ Build plate grain direction must be perpendicular to recoater direction of travel. (Vertical to front of machine)

- Clean build plate and base using IPA

- Place build plate in open SAS

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Step 2 — Build Plate - Clamping
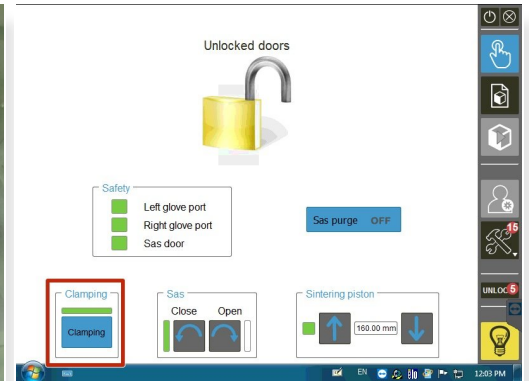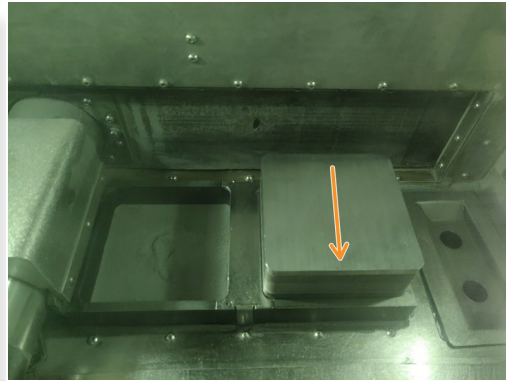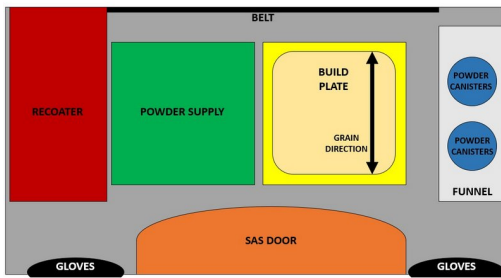
- After opening the SAS to the machine, gently place the build plate and base on the build platform
  - The inscribed **FRONT** should be facing you and the gear teeth should easily slot into place
- Select **CLAMPING** to activate the suction cup

⚠ The build plate will not sit evenly if there is powder in the gear teeth which will be evident in the preparation layer

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Step 3 — Build Plate - Loading
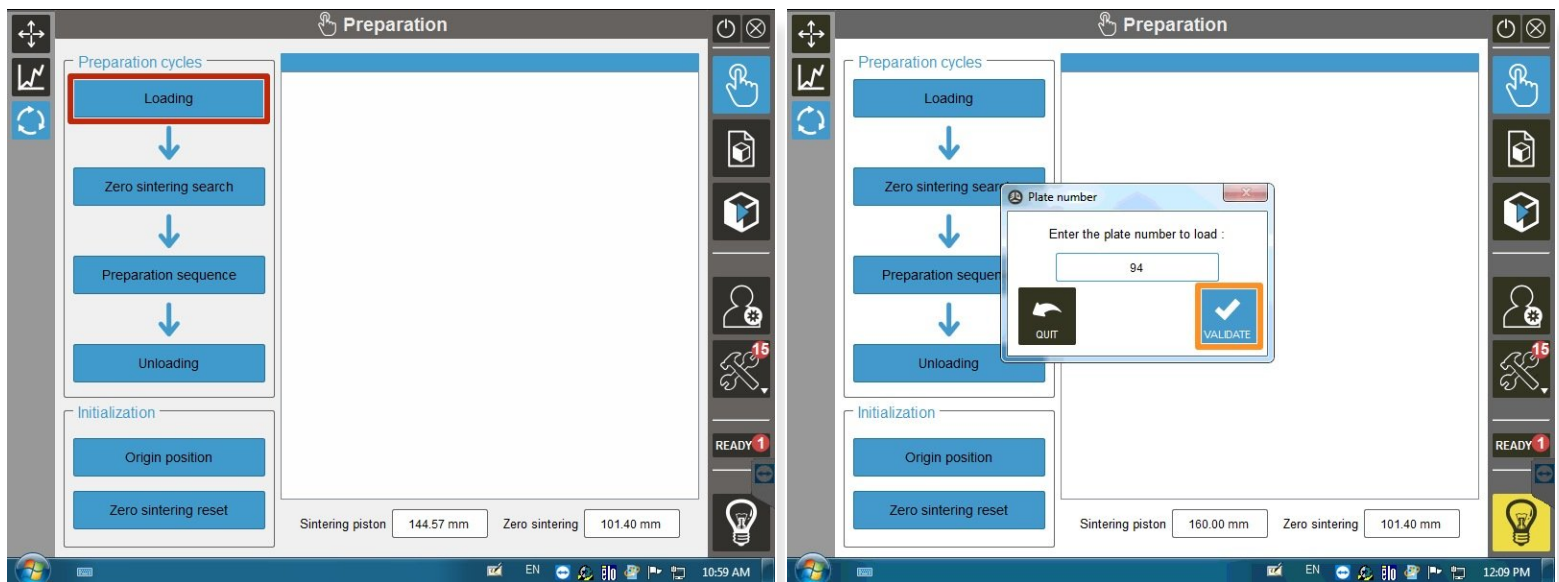
- Navigate to the **Preparation Menu** and touch **Loading** to start the process

- We do not currently mark the plate number so just touch **Validate**

Step 4 — Build Plate - Leveling
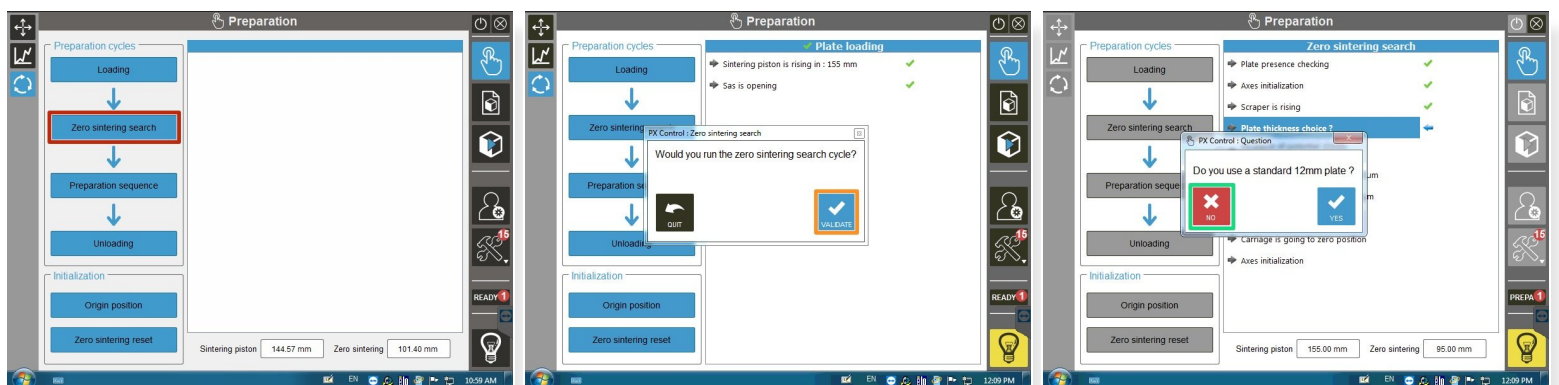
- Touch **Zero Sintering Search** to start the leveling process
  - Touch **Validate**

- Touch **NO** because we do not use a 12mm plate

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Step 5 — Build Plate - Leveling

- ● Touch **Setpoint** to set the height for the top of the build plate

- ● Change the drop down menu to **Absolute**
  - ● Set the value to **98 mm**

  - ● Touch **GO** to move the sintering piston

  - ● You have to touch the back arrow to exit this menu
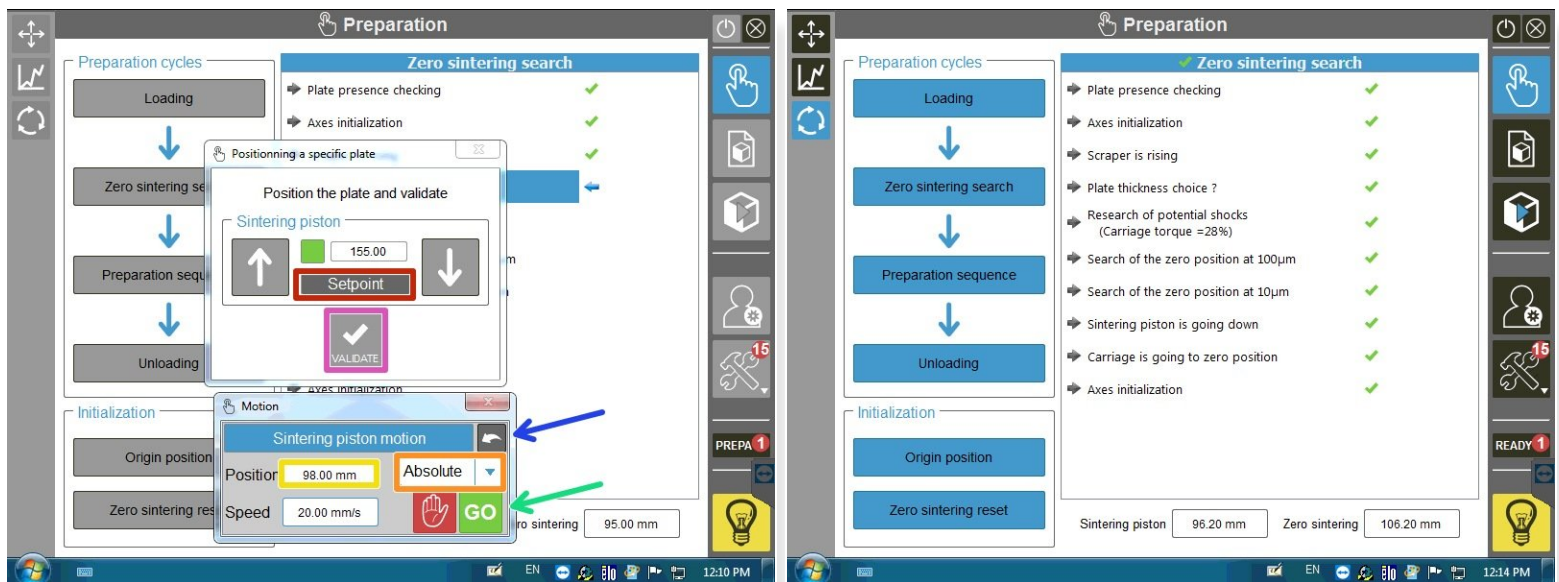
- ● Touch **Validate** to initiate the automatic zero sintering process

- ● The machine will run through the zero sintering procedure to level the build plate for the preparation layer
  - ⓘ The process takes a few minutes

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Step 6 — Build Plate - Preparation Layer
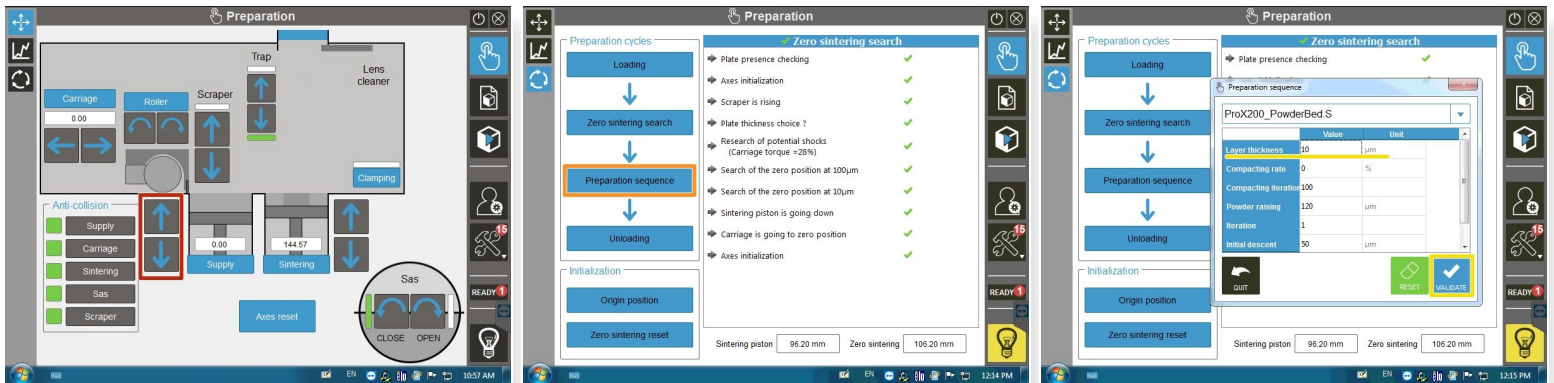
- (i) The powder supply should be at an even height with the build platform
  - If it isn't, raise the piston until it is level

- Touch **Preparation Sequence** to start the powder layering process

- Make sure the **Layer Thickness** is set to **10 um** and then touch **Validate**

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Step 7 — Build Plate - Preparation Layer
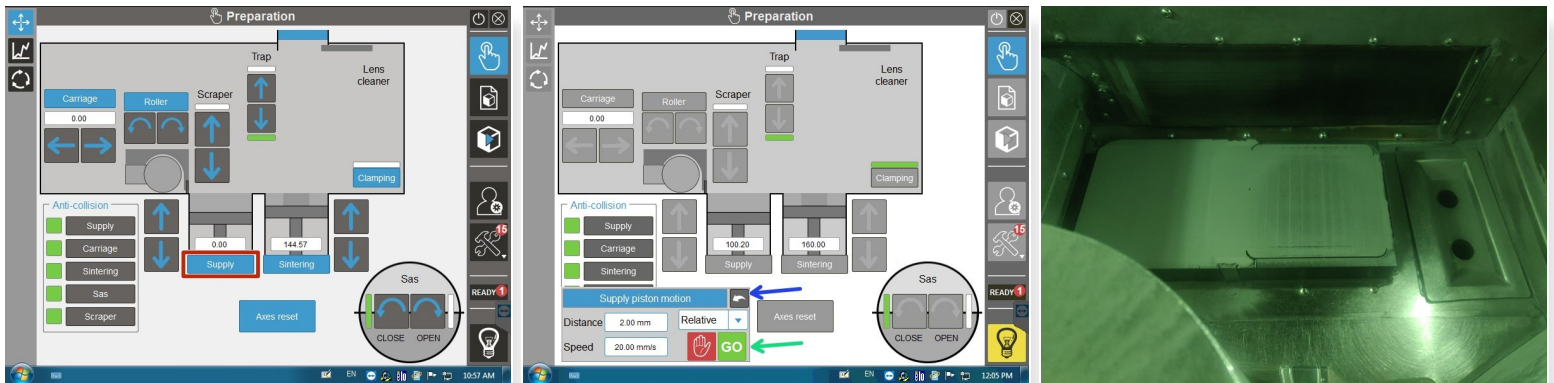
ⓘ You will repeat the preparation layering steps if the first layer of powder is uneven or has weird patterns

  ⓘ You are looking for an evenly distributed thin layer of powder

● Touch **SUPPLY** and raise the powder supply up **2 mm** using **Relative** motion

  ● Touch **GO** to move the piston

    ⓘ Each time you touch **GO** the powder supply will move an additional distance

  ● You must select the back arrow to exit the menu

● Go through the **Preparation Sequence** again

● You are finished once the powder layer looks even

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Step 8 — Loading Build File
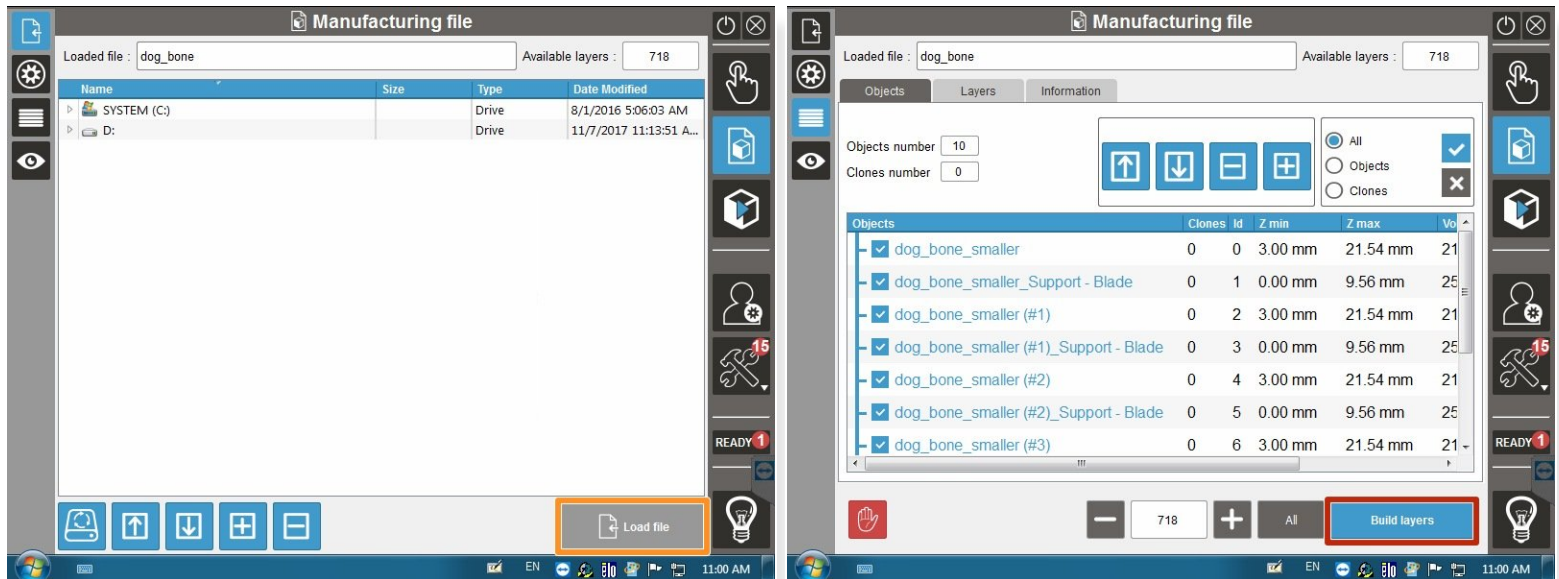
- Find the build file from the build menu and then touch **LOAD FILE**

- Touch **BUILD LAYERS** after confirming all associated files are present

- *(i)* Support structures are considered as their own objects

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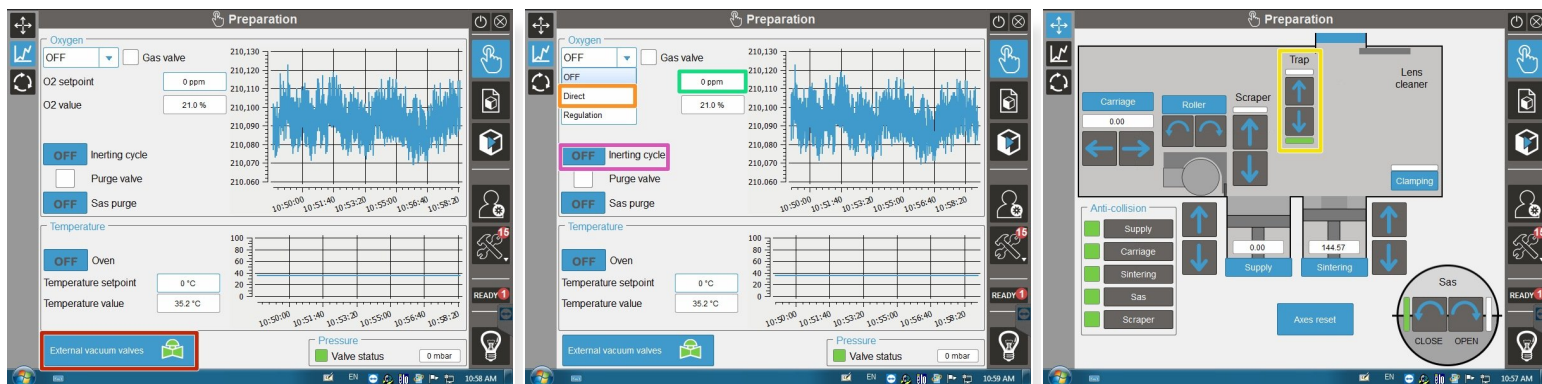## Step 9 — Water Supply Check

- Open up the machine using the square key for the (2) locks
- The water level should be between the marked levels
  - Add DI water if necessary

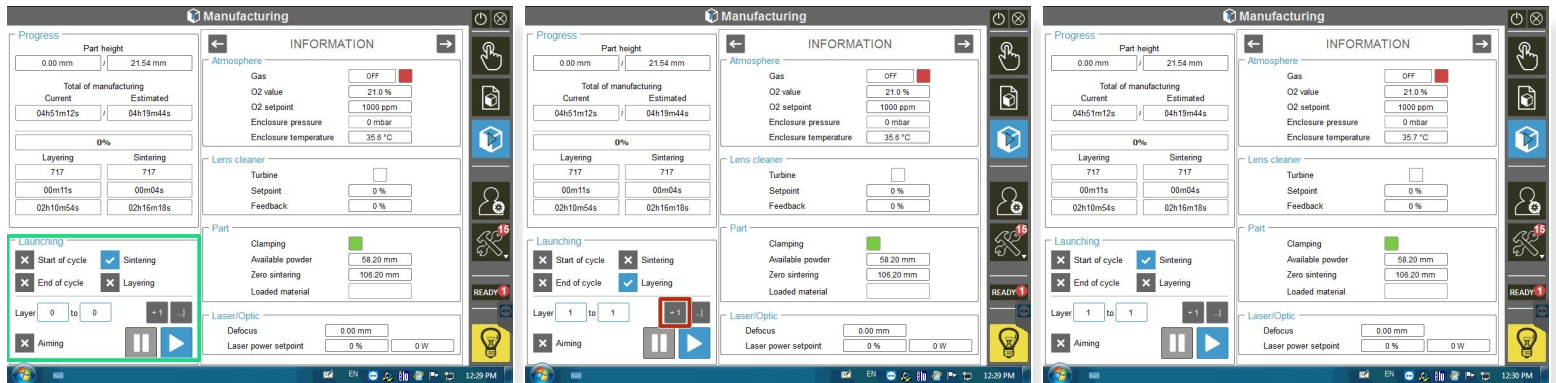## Step 10 — Lens Cleaning

- View the Lens Cleaning Dozuki

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Step 11 — Purging Oxygen

(i) This will take ~2 hours

● Close all valves by touching **EXTERNAL VACUUM VALVES**

● Manually lock the arm holes and make sure to turn the Argon on

● Set oxygen to **DIRECT**

● Change the O2 setpoint to **1000 ppm**

● Touch **INERTING CYCLE** and set to **ON**

● Open and close the lens trap when the oxygen value is at 2000 ppm for about 3 seconds
  ● This will cause a small spike in oxygen, but will go back down to 1000 ppm

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Step 12 — Manual Powder Layering

- The preparation layer is layer 0. Turn off all **LAUNCHING** commands except **Sintering**. Then touch **PLAY** to **Sinter 0**

- Touch **+1** to move to the next layer. Turn on **Layering** and turn off **Sintering**
  - Touch **PLAY** to **Layer 1**
  - Turn off **Layering** and turn on **Sintering**. Now **Sinter 1**

- Repeat 3-5 times until it looks good

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Step 13 — Run the Build
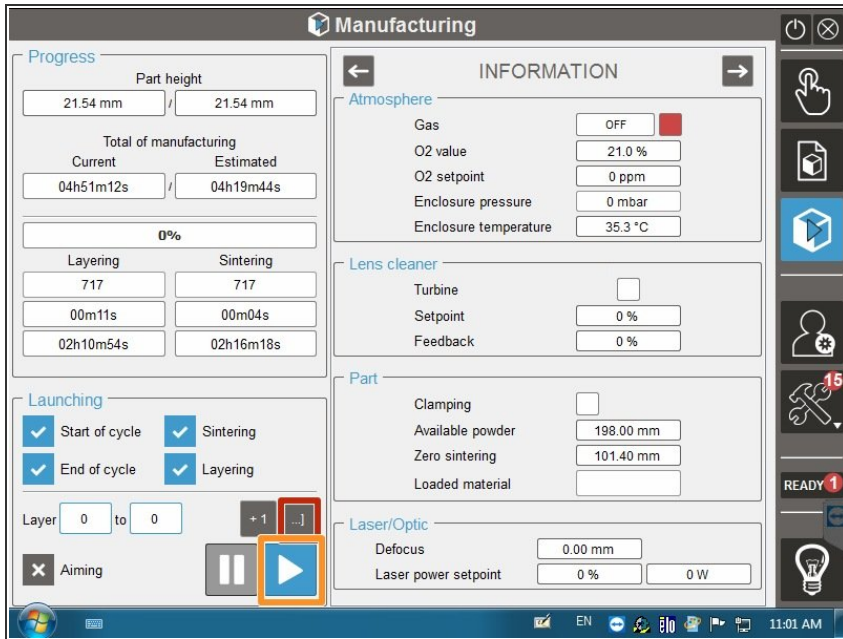
- Select build to end and sinter to end

- All **Launching** commands should be selected

- Touch **PLAY** to run the build

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