amt postpro®




# postpro SF GEN2

## USER MANUAL

SUBJECT TO CHANGE

**FA326**

V2.3 // OCTOBER 2026

## DOCUMENT IS CONFIDENTIAL

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## GENERAL DISCLAIMER

This manual is provided for informational purposes only. Additive Manufacturing Technologies Ltd. ('AMT') assumes no liability for any damages, injury, or loss arising from the improper installation, operation, or maintenance of this equipment. Users must ensure all operation complies with applicable safety, environmental, and workplace regulations. Unauthorized modifications, repairs, or use of non-approved consumables will void all warranties and may present safety risks.

## LIMITATION OF USE

This equipment is designed solely for industrial surface-finishing of 3D-printed polymer parts using AMT-approved consumables (e.g., FA326). Use of any other chemical or modification of the process not expressly approved in writing by AMT voids all warranties and releases AMT from any liability related to safety, performance, or regulatory compliance.

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## 2 // RISKS AND SAFETY WARNINGS

**⚠DANGER** Danger indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

**⚠WARNING** Warning indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

**⚠CAUTION** Caution indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

**⚠DANGER** Chemical Hazard: FA326 may cause severe skin burns and permanent eye damage, including blindness. The chemical may also cause organ damage with prolonged exposure. Pregnant and breastfeeding women should not enter the processing room or operate PostPro SF. The client must have an eye wash station and emergency shower available when using this consumable and follow the general lab safety precautions. The consumables may also cause an allergic skin reaction. Do not breathe the mist or vapor.

**⚠CAUTION** Chemical Hazard: Avoid touching parts that have been partially or recently processed, even when wearing nitrile gloves. Ensure that all PostPro SF process steps are concluded to the manufacturer's instructions before touching any processed parts with bare hands.

**⚠CAUTION** Chemical Hazard: Inhalation - Avoid breathing vapours or aerosols. If exposure occurs, move to fresh air immediately and seek medical attention if symptoms persist. Prevent product or waste solvent from entering drains or soil. Collect spills with absorbent material and dispose of as hazardous waste.

**⚠CAUTION** Chemical Hazard: If an operator gets chemicals in their eye, immediately flush it out with water using the safety eye wash. Consult the MSDS for more information about treating eye exposure.

**⚠CAUTION** Chemical Hazard: If an operator gets chemicals on their skin, immediately rinse with water. Consult the MSDS for more information about treating skin exposure.

**⚠CAUTION** Chemical Hazard: If a processed part is sticky, even after full processing, something may have gone wrong with the processing steps or the part may be partially processed. Do not handle the part with bare hands and avoid any inhalation of fumes by using an appropriate mask with a filter.

**⚠DANGER** Chemical Hazard: Always keep the PostPro SF machine closed when not processing to ensure no fumes are inhaled by operators. Keep waste containers closed at all times.

**⚠CAUTION** Pinch Hazard: The door of the processing chamber is heavy. Close the door carefully using the buttons on the PostPro SF to avoid pinching fingers or hands.

**⚠CAUTION** Electrical Hazard: Do not open any door in the body of the device as there is an electric shock risk. The doors are for service entry only by AMT Support team only.

**⚠WARNING** Chemical warning: Do not place processed parts in the mouth or give processed parts to children or to animals.

**⚠DANGER** Tripping Hazard: Always use at least two people to move PostPro SF. Install the castor wheels at the base of the machine before attempting to move the machine. Lock the wheels once PostPro SF is in its new position and re-level.

## 3 // OPERATING THE POSTPRO SF SAFELY

AMT recommends that the client studies this section carefully and if the client has any questions, about how to create a safe operating environment or how to operate the PostPro SF safely, contact us immediately.

Prior to the installation of the machine, we recommend that the client gets all safety equipment and procedures in place. We can provide advice on how this is done.

The PostPro SF uses potentially hazardous consumables if handled incorrectly. Material Safety Data Sheets (termed MSDS) are available for all consumables used. The client's safety procedures should rely solely on the information on the MSDS on handling chemicals, what to do if there is a spill and what to do if the chemical comes in contact with skin, etc.

### 3.1 MATERIAL SAFETY DATA SHEETS (MSDS)

The client should read and understand the MSDS for the consumable used by their PostPro SF machine. A copy of the MSDS can be provided by AMT or your Authorised AMT Reseller.

The client should ensure they place paper and electronic copies of the MSDS where machine operatives and visitors can access them quickly in the PostPro SF machine room.

### 3.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

While operating the PostPro SF the following PPE must be used:

- Disposable nitrile gloves.
- Closed-toed safety shoes.
- Laboratory Spill resistant coat.
- Close-fitting chemical eye protection.
- Half face mask with AX-P3 type filters.

### 3.3 GENERAL LAB SAFETY PRECAUTIONS

- Wear close-fitting chemical eye protection.
- Wear a lab coat, disposable gloves, and closed-toed chemical-resistant shoes.
- Change disposable gloves often.
- Wash hands between glove changes and at the end of the processing.
- Always keep lab coats inside the lab area until they are sealed in a bag and removed by a laundry service.
- Tie long hair back to avoid catching it in mechanical parts or brushing it against chemicals on the lab bench.
- Remove jewellery, such as necklaces and rings, to avoid catching them in mechanical parts or trapping chemicals under them.
- No food or drink should be brought into or consumed in the processing room.
- Make sure the processing room has a well-maintained eye-wash station and safety shower.
- Never work alone in the lab.
- Ensure the processing room has ventilation or local exhaust extraction.

Disclaimer: The PostPro SF system operates with FA326. Users must consult and follow the latest FA326 Material Safety Data Sheet. AMT assumes no responsibility for personal injury, illness, or environmental contamination resulting from non-compliance with the MSDS or from use of non-approved solvents or substitutes.

## 3.4 SAFETY SUMMARY

### PPE

- Disposable nitrile gloves.
- Closed-toed safety shoes.
- Laboratory spill-resistant coat.
- Close fitting-chemical eye protection.
- Half face mask with AX-P3 type filters.

### EMERGENCY STOP

- Located on the front left-hand side of the machine.
- Stops all movement and power.
- When pressed, the process cannot be recovered.

### FORCED DRYING CYCLE

- If the machine shuts down, a hard error occurs, or the E-stops is pressed during a cycle it will enter a forced drying cycle when the machine resumes.
- Short drying cycle to extract any potential solvent from the chamber.
- If this is interrupted it will continue to attempt the forced drying cycle until it completes.

### UPS

- Uninterruptable Power Supply.
- Activates when the machine loses power or is powered off incorrectly.
- It provides power for approximately five minutes before complete shutdown. This temporary supply is not sufficient to maintain operation but allows enough time for the machine to shut down safely.

### DOOR MOVEMENT BUTTONS

- The door only moves when both of the two-hand start buttons are pressed simultaneously.
- Located on both the right and left side of the machine.
- The door controls should be operated by one person at a time at full arm's length.
- Ensure the door is clear of any obstructions, and do not attempt to put anything between the door when in operation.
- Never attempt to force or manually move the door while it is in motion, as this may cause damage to the mechanism or result in injury.



## 4 // TRAINING

Before the installation takes place, users of the PostPro SF must undertake a training session provided to them by AMT or an Authorised AMT Reseller.

All users of the PostPro SF should be present during the entirety of the training. The training is essential to understand how to operate the machine safely and how to achieve the best results from the system.

Only persons present at the time of training should use the machine. If necessary additional training can be provided by AMT or an authorized representative.

## 5 // EQUIPMENT DESCRIPTION

### 5.1 OVERVIEW

The PostPro SF offers a controllable surface finish which reduces surface roughness (Ra values) of 3D printed polymer without the loss of detail and definition. In addition, the smoothing process naturally seals the surface of the 3D printed part, which significantly enhances the water-protective and mechanical properties of the material.

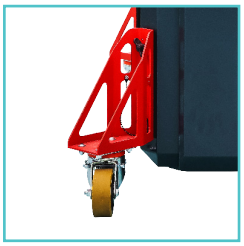
The machine has been successfully tested with a range of polymers including: Polyamide (PA)-12, PA-11, PA-6, Thermoplastic Polyurethane (TPU), TPE-210 elastomer materials, Polymethyl Methacrylate (PMMA) Acrylonitrile butadiene styrene (ABS) and many more. It is capable of processing Multi Jet Fusion (MJF), Selective Laser Sintered (SLS), High Speed Sintered (HSS) and Fused Deposition Modelling (FDM) 3D printed parts to the desired surface roughness.

### 5.2 ITEMS SUPPLIED

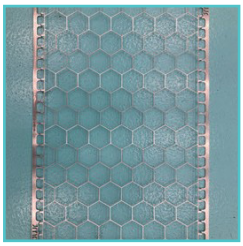
The PostPro SF machines are supplied with the following items:



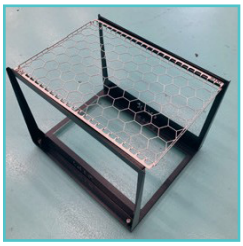
1 x PostPro SF



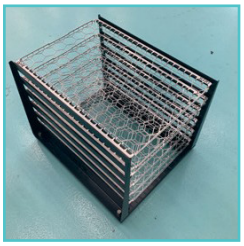
4 x Transport Wheels



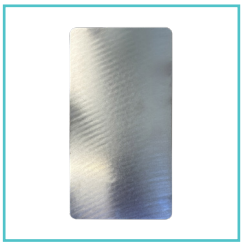
6 x Processing Rack



1 x Preparation Stand



1 x Storage Stand



1 x Diffuser Plate



3 x Panel Keys

# 6 // MACHINE SPECIFICATION

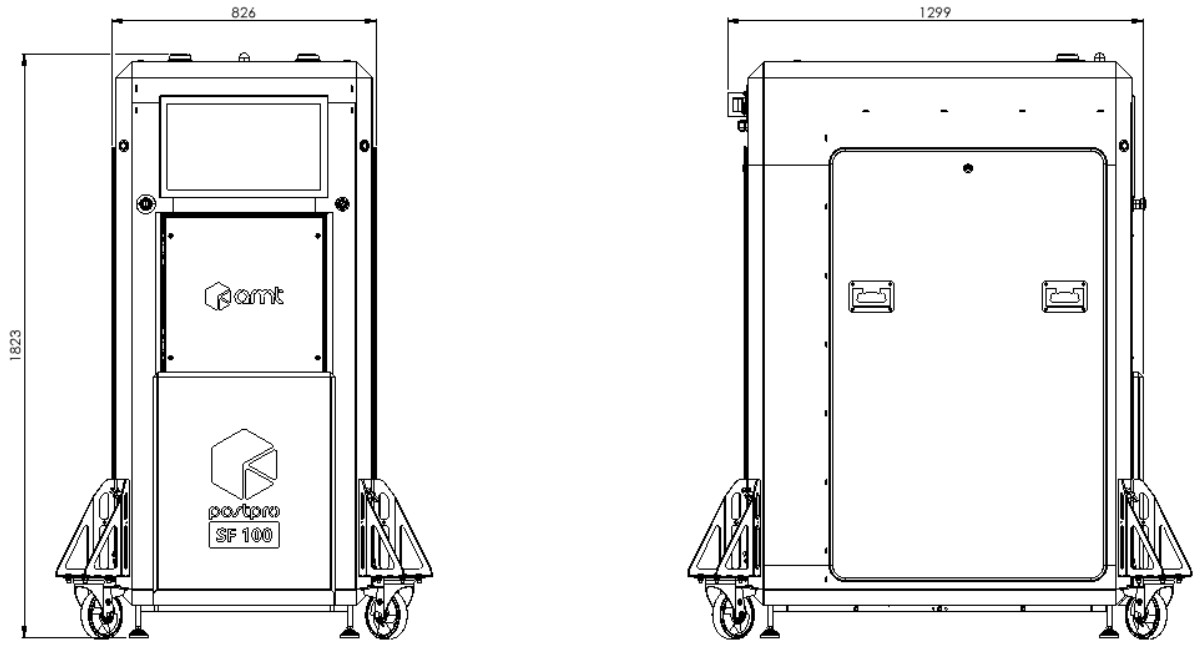
## 6.1 SF50 MACHINE SPECIFICATIONS

| Description | EU | US |
|---|---|---|
| External Dimensions (WDH) | 826 x 1299 x 1823 mm | 32.5 x 51.1 x 71.7 in |
| Weight | 540 Kg | 1,190 lbs |
| Recommended Operating Area | 2,350 x 3,200 mm | 92.5 x 126 in |
| Capacity | | |
| Process Chamber Dimensions (WDH) | 400 x 300 x 400 mm | 15.7 x 11.8 x 15.7 in |
| Process Chamber Volume | 48 Litres | 48 Litres |
| Consumable Canister Volume | 10 Litres | 10 Litres |
| Power | 3 x 400V, 16A, 50/60Hz, (L1+L2+L3+N+PE) | 3 x 480V, 30A, 50/60Hz, (L1+L2+L3+PE) |

## 6.2 SF100 MACHINE SPECIFICATIONS

| Description | EU | US |
|---|---|---|
| External Dimensions (WDH) | 826 x 1299 x 1823 mm | 32.5 x 51.1 x 71.7 in |
| Weight | 600 Kg | 1,322 lbs |
| Recommended Operating Area | 2,350 x 3,200 mm | 92.5 x 126 in |
| Capacity | | |
| Process Chamber Dimensions (WDH) | 400 x 600 x 400 mm | 15.7 x 23.6 x 15.7 in |
| Process Chamber Volume | 96 Litres | 96 Litres |
| Consumable Canister Volume | 10 Litres | 10 Litres |
| Power | 3 x 400V, 16A, 50/60Hz, (L1+L2+L3+N+PE) | 3 x 480V, 30A, 50/60Hz, (L1+L2+L3+PE) |

6.3 MACHINE DIMENSIONS (MM)






6.4 POSTPRO SF50 DIMENSIONS AND WEIGHT

| | mm / Kg | In / lbs |
|---|---|---|
| Width | 826 mm | 32.5 in |
| Depth | 1299 mm | 51.1 in |
| Height | 1,823 mm | 71.7 in |
| Weight | 540 Kg | 1,190 lbs |

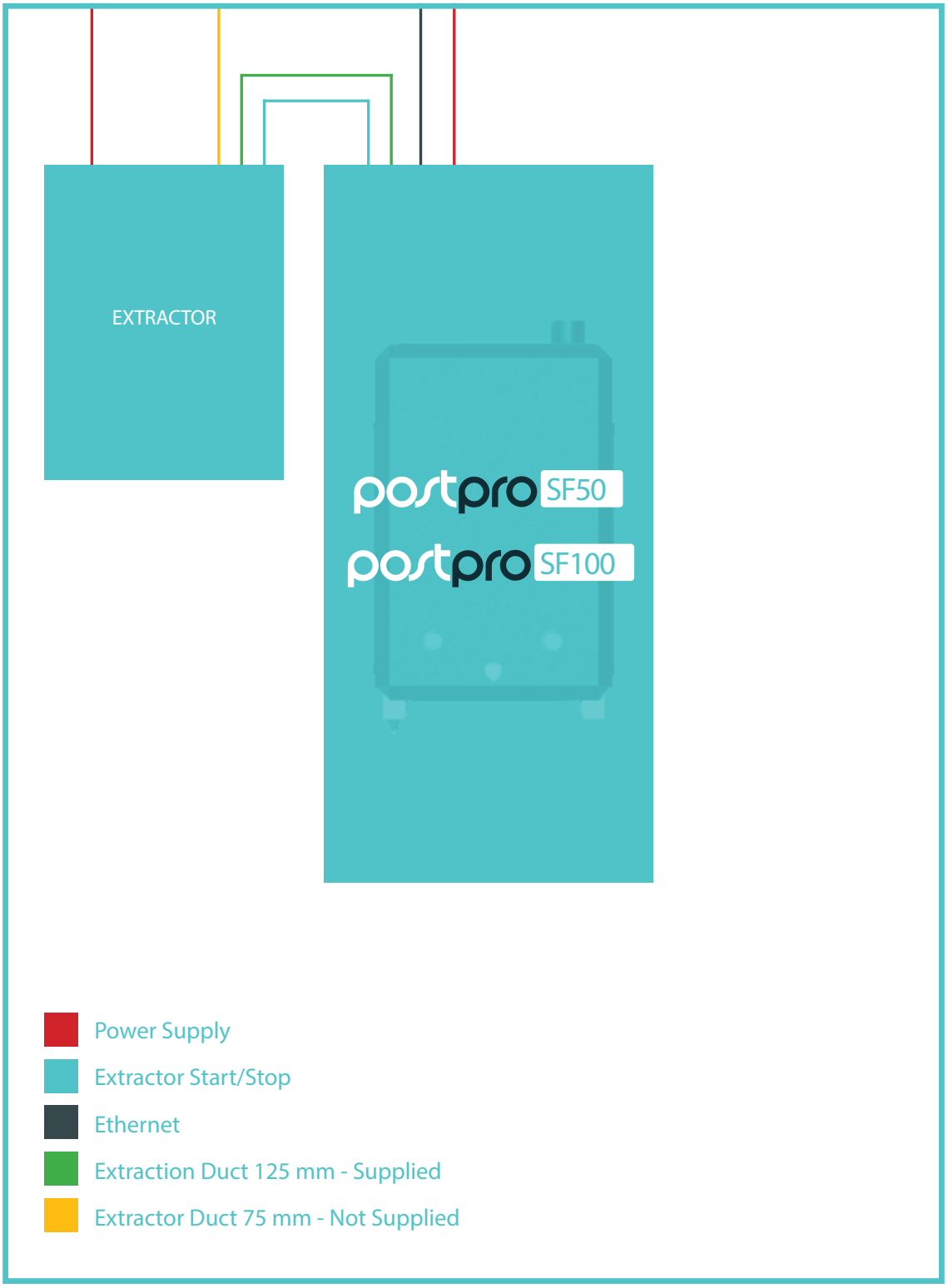
6.5 POSTPRO SF100 DIMENSIONS AND WEIGHT

| | mm / Kg | In / lbs |
|---|---|---|
| Width | 826 mm | 32.5 in |
| Depth | 1299 mm | 51.1 in |
| Height | 1,823 mm | 71.7 in |
| Weight | 600 Kg | 1,322 lbs |

6.6 EXTRACTOR DIMENSIONS AND WEIGHT

| | mm / Kg | In / lbs |
|---|---|---|
| Width | 547 mm | 21.5 in |
| Depth | 626 mm | 24.6 in |
| Height | 995 mm | 39.2 in |
| Weight | 71 Kg | 157 lbs |

6.7 CONNECTION LAYOUT



## 6.8 ELECTRICAL POWER REQUIREMENTS

The client is responsible for connecting all supplied equipment to the building's power supply prior to the installation date. The PostPro SF systems are available in multiple electrical configurations to suit different facility electrical supplies. The electrical configuration must be specified at the point of sale. The tables which follow show the electrical supply specifications for each system, in addition to the external extractor.

### 6.8.1 POSTPRO SF50

ALWAYS CHECK THE MACHINE PLATE BEFORE CONNECTION.

| Specifications | Option 1 | | Option 2 |
|---|---|---|---|
| Phases | Three Phase | | Three Phase |
| Voltage | 3 x 400V | | 3 x 480 V |
| Frequency | 50/60Hz | or | 50/60Hz |
| Mains Fuse Protection | C16A | | C16A |
| Connection | L1 + L2 + L3 + N + PE | | L1 + L2 + L3 + PE |
| Maximum Power Consumption | 11.0 Kw | | 11.0 Kw |
| Average Power Usage (Cold Start) | 0.16 kWh | | |
| Average Power Usage (Preheated) | 0.13 kWh | | |

### 6.8.2 POSTPRO SF100

ALWAYS CHECK THE MACHINE PLATE BEFORE CONNECTION.

| Specifications | Option 1 | | Option 2 |
|---|---|---|---|
| Phases | Three Phase | | Three Phase |
| Voltage | 3 x 400V | | 3 x 480 V |
| Frequency | 50/60Hz | or | 50/60Hz |
| Mains Fuse Protection | C16A | | C16A |
| Connection | L1 + L2 + L3 + N + PE | | L1 + L2 + L3 + PE |
| Maximum Power Consumption | 11.0 Kw | | 11.0 Kw |
| Average Power Usage (Cold Start) | 0.31 kWh | | |
| Average Power Usage (Preheated) | 0.13 kWh | | |

### 6.8.3 EXTRACTOR

| Specifications | |
|---|---|
| Phases | Single Phase |
| Voltage | 100-240V |
| Frequency | 50/60Hz |
| Mains Fuse Protection | 12.5A |
| Connection | L + N + PE |

## 7 // MACHINE OVERVIEW

1. HMI: With the HMI the user can set process parameters, start a process run, diagnose the machine in case of warnings or errors and communicate with AMT's support.
2. ON/OFF Isolator: This switch is used to turn the power supply to the machine on and off.
3. E-Stop: An emergency button is placed on the front side and should be pressed in case of an emergency.
4. Process Chamber Door: The door lowers to give access to the processing chamber and raises again during processing.
5. Door Movement Buttons: To avoid getting trapped, the two buttons must be pressed simultaneously to activate the door opening and closing mechanism.
6. Air Extraction Outlet: Outlet which is connected to the extraction unit.
7. Extractor Connection: Start-Stop connection to the extraction unit.
8. Ethernet Connection: To connect the machine to the AMT server for remote monitoring. Only use a non- PoE, connecting a PoE (Power over Ethernet) can damage the machine.
9. Power Connection: Power lead to connect to the mains power supply.
10. Power On/Off: This button is used to turn on/off the machine.



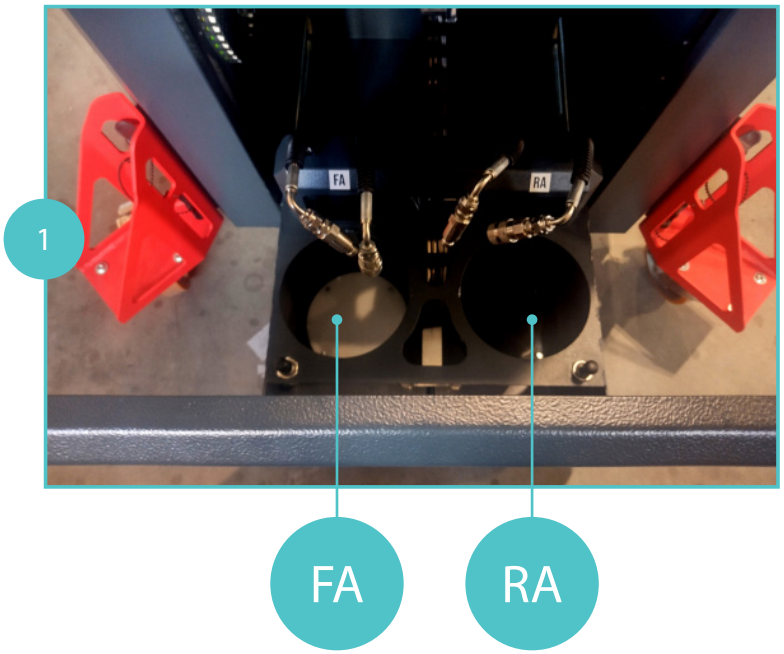
## 7.1 CANISTER LOCATION AND CONNECTIONS

1. Canister Position - In the drawer underneath the processing chamber, the active canisters should be connected.
2. Canisters - The machine operates with two canisters: one FA326 and one RA326.
    - The FA326 canister contains the consumable material.
    - The RA326 canister is used to collect the waste liquid and is therefore supplied empty.
    - The system runs with a 1:1 ratio between the two canisters.
3. Quick Release Connectors (QR) - The canisters are connected to the machine using QR connectors and can be connect by pushing them together. This reduces the risk of spills/leaks.

    It is important to check the integrity of these QR connections during each canister change over.

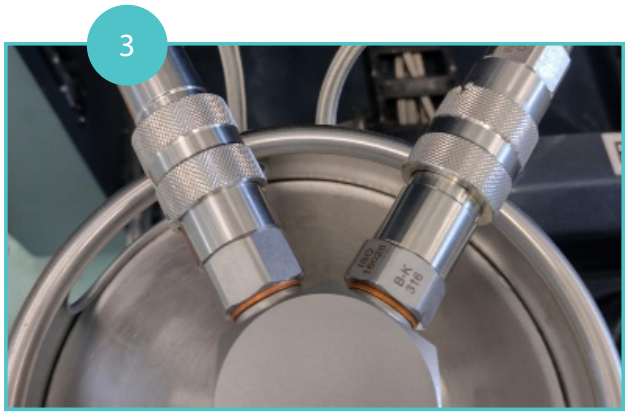
The PostPro SF is a closed-loop system so waste and unused solvent is recovered.

Both canisters must be stored in a suitable location that meets the environmental specifications as outlined in the consumables MSDS.









### 7.1.1 UNPACKAGING A CANISTER

The canisters are supplied in dedicated packaging. Ensure the packing is kept so the canisters can be safely returned to AMT after use.

When handling the canisters, the recommend PPE outlined previously must be worn.

1. Open the clip on the top of the barrel.
2. Remove the Lid.
3. Open the sealed bag containing the canisters.
4. Pull the canister upwards and out of the barrel.
5. Keep all packing materials including barrel, bag etc. for shipping back to AMT.

1



2



3



4



5



7.1.2 RETURNING A CANISTER

Following the consumption of canisters it is important to correctly package the canister for shipment. Please follow the below instructions:

When handling the canisters, the recommend PPE outlined previously must be worn.

1. Place the canister in the plastic bag and seal.
2. Place the sealed bag containing the canister in the barrel.
3. Fill the barrel with vermiculite.
4. Place the lid on the barrel.
5. Fix the lid in place using the clip.
6. The canister is now ready for shipment. Please contact AMT to arrange collection and shipment.

1



2



3



4



5



6

CONTACT US

Used canisters remain classified as hazardous waste until received by AMT or its authorized carrier. Ship only in original packaging in compliance with Directive 2008/98/EC and ADR/IMDG/IATA rules.

## 7.2 PROCESSING CHAMBER

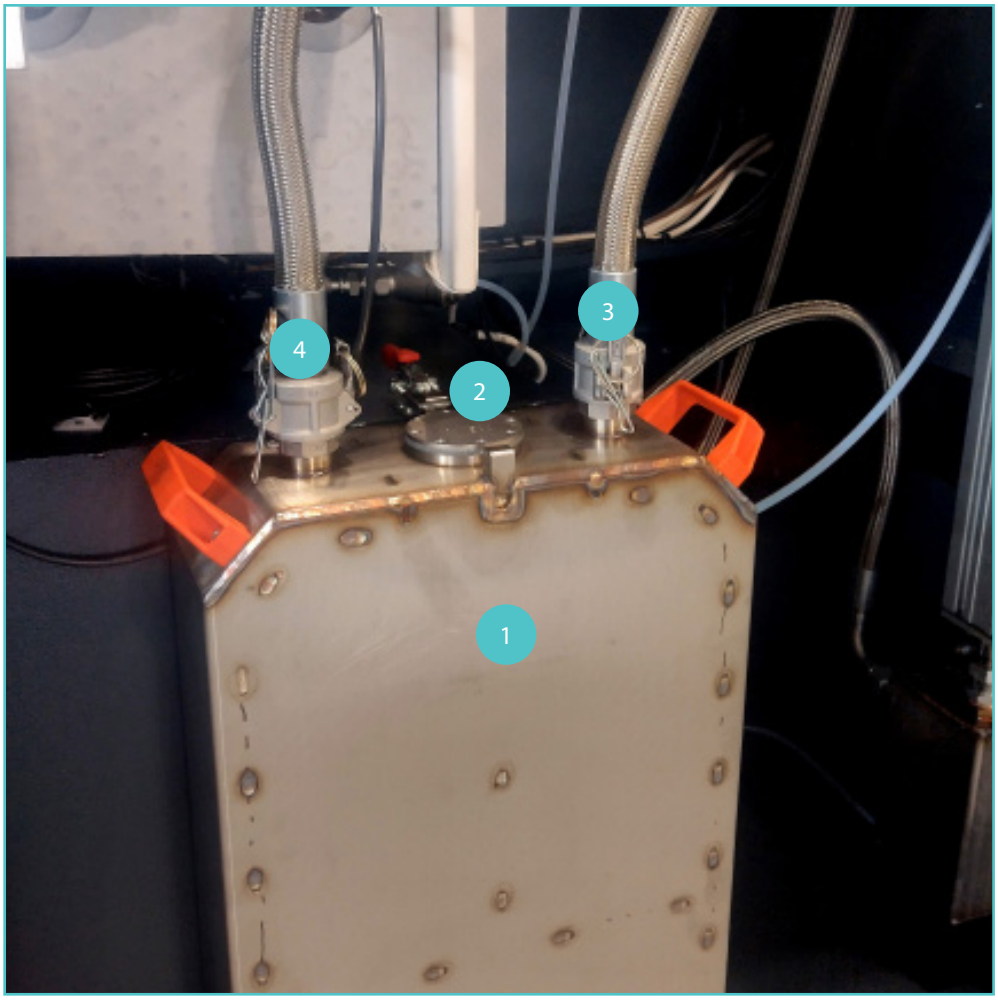
1. Air Inlet: Provides controlled airflow into the chamber to ensure even vapor distribution and maintains consistent processing conditions.
2. Extraction: Removes vapor and air from the chamber after processing to maintain system efficiency.
3. Impeller: Circulates vapor and air within the chamber to achieve uniform exposure across all part surfaces.
4. Chamber Filter: Captures contaminants from the waste consumable, ensuring clean operation and environmental safety.
5. Solvent Injector: Delivers a precise amount of solvent into the chamber to generate vapor for the smoothing process.



7.3 CARBON FILTER

The carbon filter is used to capture any solvent which may still be present in the waste air after recovery. It is located behind the right-hand panel of the machine.

1. Carbon Filter – Used to capture waste solvent.
2. Carbon Filter Clamp – Attaches to the filter to keep the filter locked in position.
3. Filter Connection Inlet – Connection from the outlet of the machine to the filter.
4. Filter Connection Outlet – Outlet of the filter to the inlet of the machine.



# 8 // POSTPRO SF HMI

## 8.1 LOADING

The screen below appears immediately after the device is powered on. During this phase, the system automatically loads the required software components and performs the initialization procedures. This process typically takes between 30 to 60 seconds, during which no user interaction is required. Once loading is complete, the system automatically proceeds to the home screen.

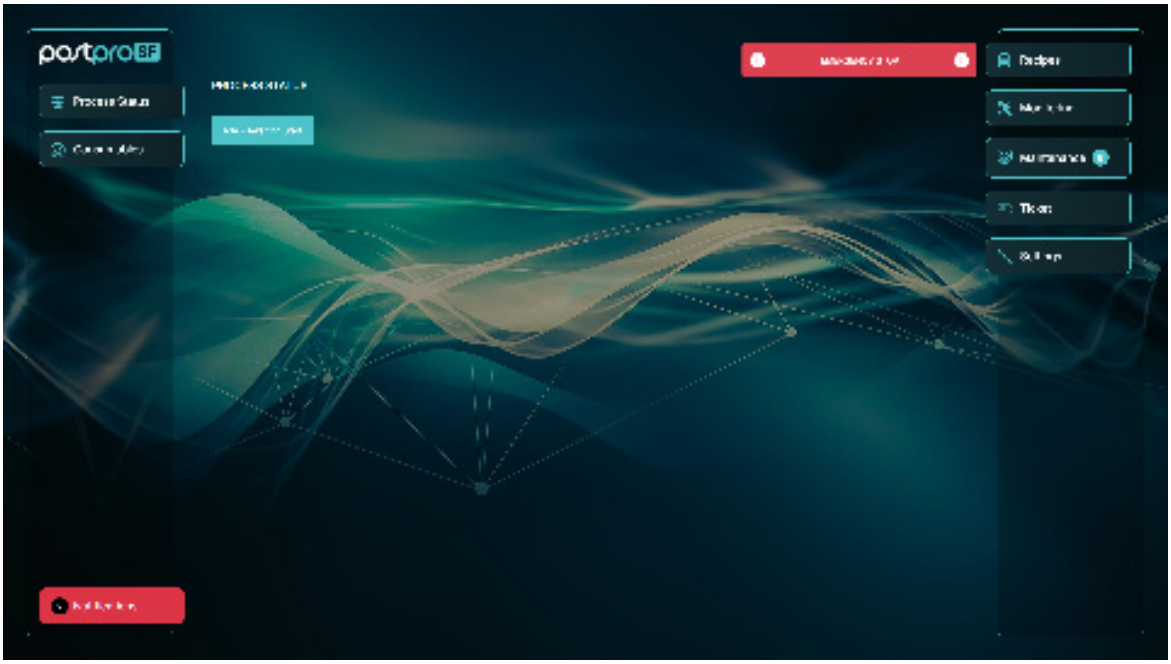


8.2 HOME

The image below shows the machine's home screen, which appears after the system has finished loading. This screen serves as the main navigation hub for accessing all features and configuration options. The main functions are accessible via the left and right panels:

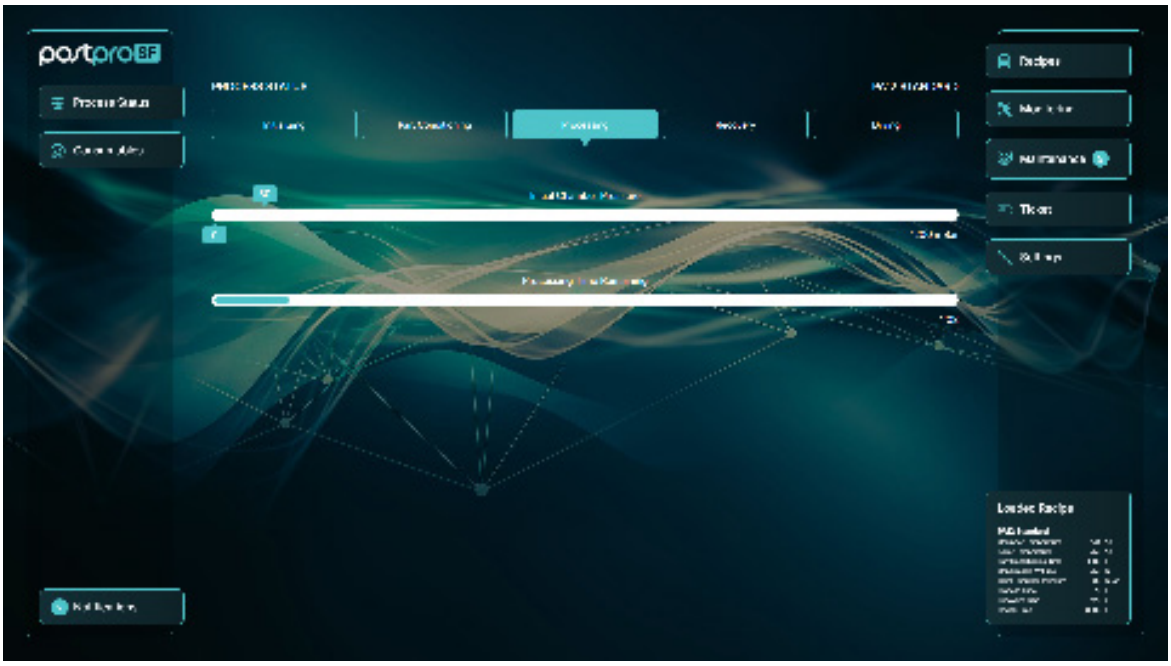
Left side: Process Status, Consumables, and Notifications.

Right side: Recipes, Monitoring, Maintenance, Ticket and Settings section.



8.3 PROCESS STATUS

The process status screen provides a live overview of the current job. It displays the selected recipe, active phase of the cycle, key parameters. This allows the operator to monitor the process and ensure the system is running as expected.

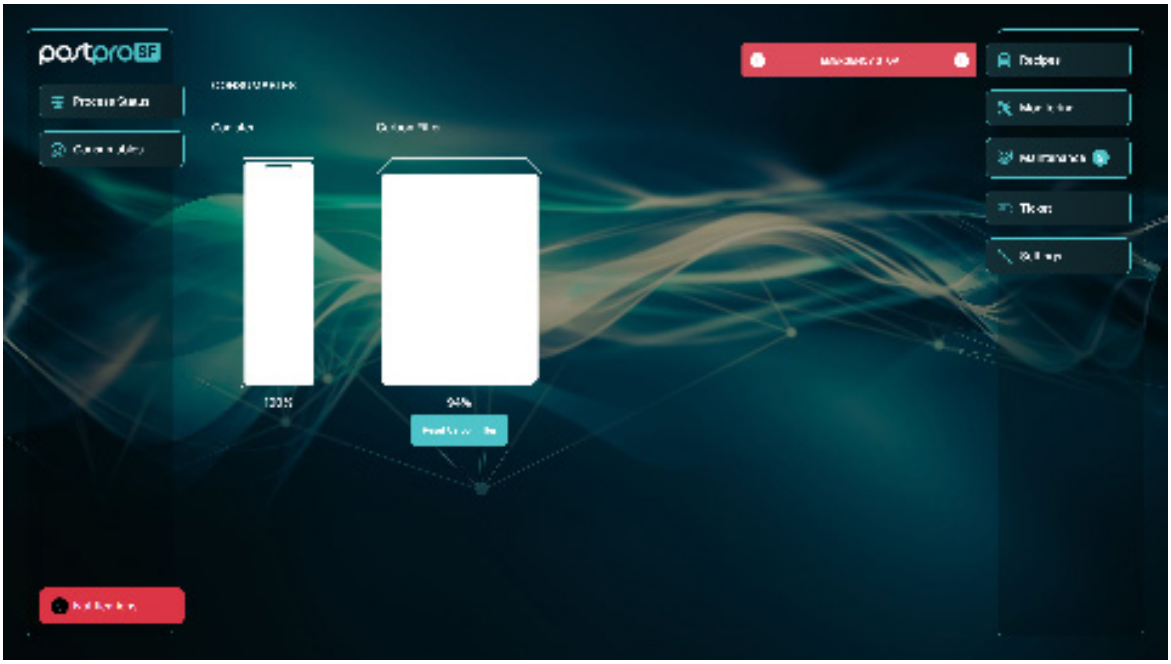


8.4 CONSUMABLES

This screen displays the current status of the consumables loaded into the system.

Canisters - The consumable canisters contain the solvent used during vapor smoothing. They are installed in the designated slots within the machine and automatically supply solvent as required by the selected recipe. Canisters should be replaced when empty or when prompted by the system to ensure consistent process quality. This process is fully automated and outlined later in the manual.

Carbon Filter - The carbon filter captures solvent vapors from the chamber exhaust to maintain safe operation and reduce emissions. Regular replacement of the filter is required, as indicated by the machine's service notifications. It is not possible to run the machine when the filter is fully saturated.



8.5 NOTIFICATIONS

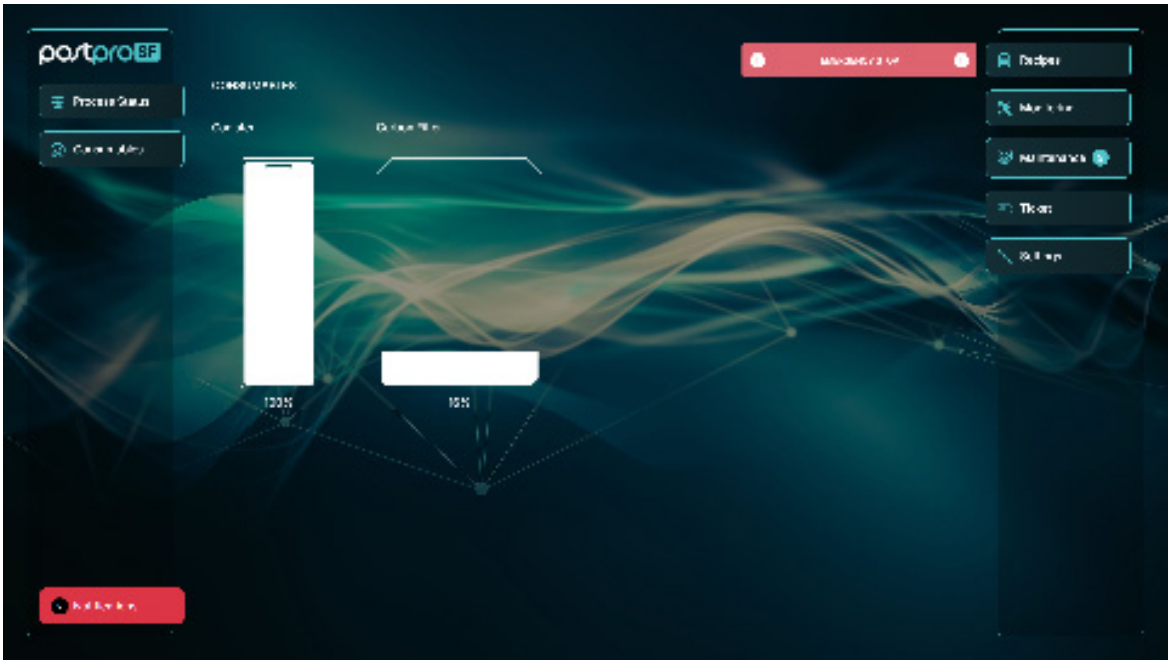
The system continuously monitors its status and will generate notifications if an error or warning occurs.
All error codes in the system begin with the prefix FW followed by a letter and number sequence. The letter indicates the type of error.

I – Informative Error
Provides system information related to different components. These errors do not affect machine performance.
• Can be cleared by the operator by pressing the "CLEAR" button.
• The machine will continue operating as normal.

S – Soft Error
Indicates a minor issue, for example when a parameter is out of tolerance. If the same condition persists, it can escalate into a Hard Error.
• Can be cleared by the operator by pressing the "CLEAR" button when the cause is no longer present.

H – Hard Error
Indicates a major issue in the system that requires attention before continuing.
• Cannot be ignored and must be resolved before the process can restart.
• Hard errors must be reported to AMT or an Authorised AMT Representative for investigation.

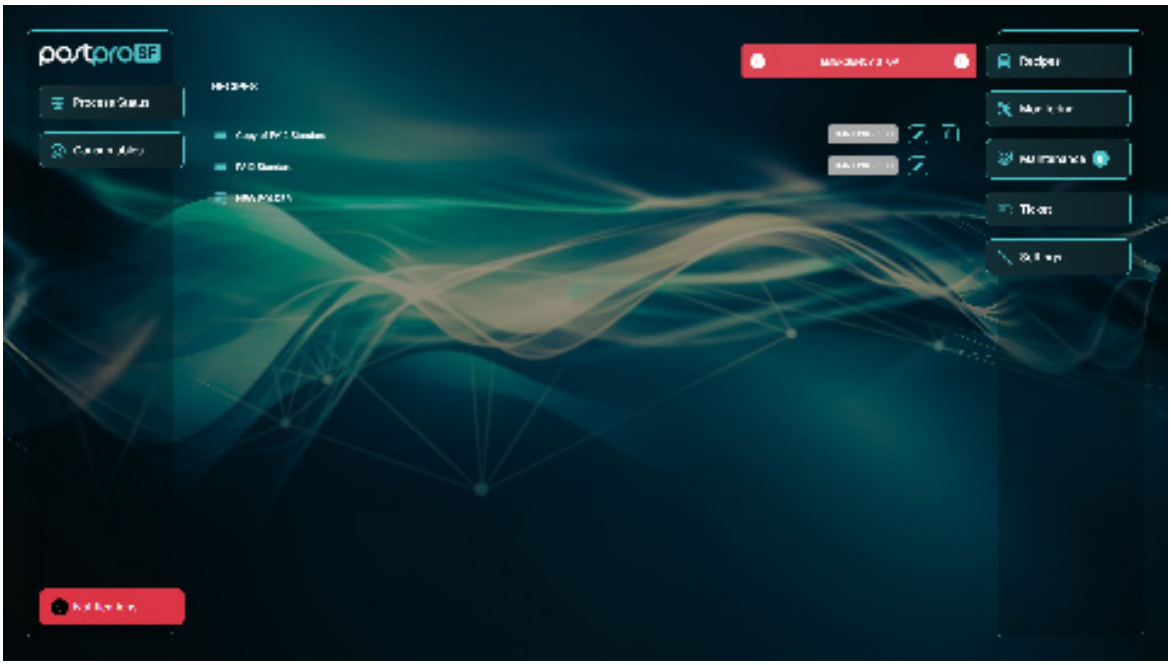
For safety and optimal performance, warnings should not be ignored and errors must be addressed immediately before continuing operation.



8.6 RECIPES

This screen displays all available recipes stored on the machine. From this page, the operator has several options:

- The operator can select an existing recipe directly from the list.
- New folders can be created to help organize the recipe library.
- A new recipe can be created by modifying an existing one and saving it under a new name.
- Once a recipe is selected, the process can be started by pressing the "START PROCESS" button.



8.7 RECIPE EDITOR

This screen allows the operator to edit the parameters of a recipe. Most parameters are adjustable, and recommendations can be found in the recipe book provided by AMT.

Recipe Name: The name of the recipe which will be displayed in the Recipe List.

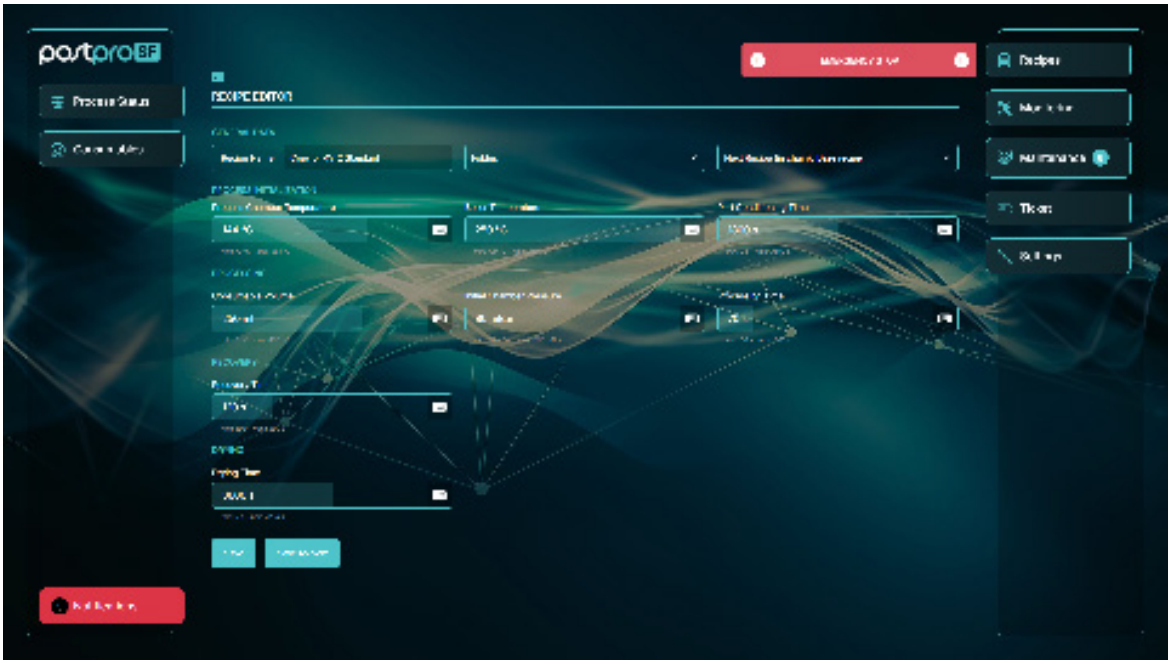
Folder: Recipes can be stored in folders to help with organization. To do this select the folder from the drop down menu. New folders can be created on the Recipes screen.

Next Recipe (in chain): This field allows the operator to select a subsequent recipe that will automatically begin once the current one is complete. This feature makes it possible to build complex treatment processes by linking multiple recipes together.

Process Parameters: Each field displays the minimum and maximum allowable values to help ensure that only valid input is entered.

Save as New: Any modified or newly created recipe can be stored under a new name by selecting the SAVE AS NEW button at the bottom of the screen.

Save: Similar to Save as New, but will overwrite the existing recipe.



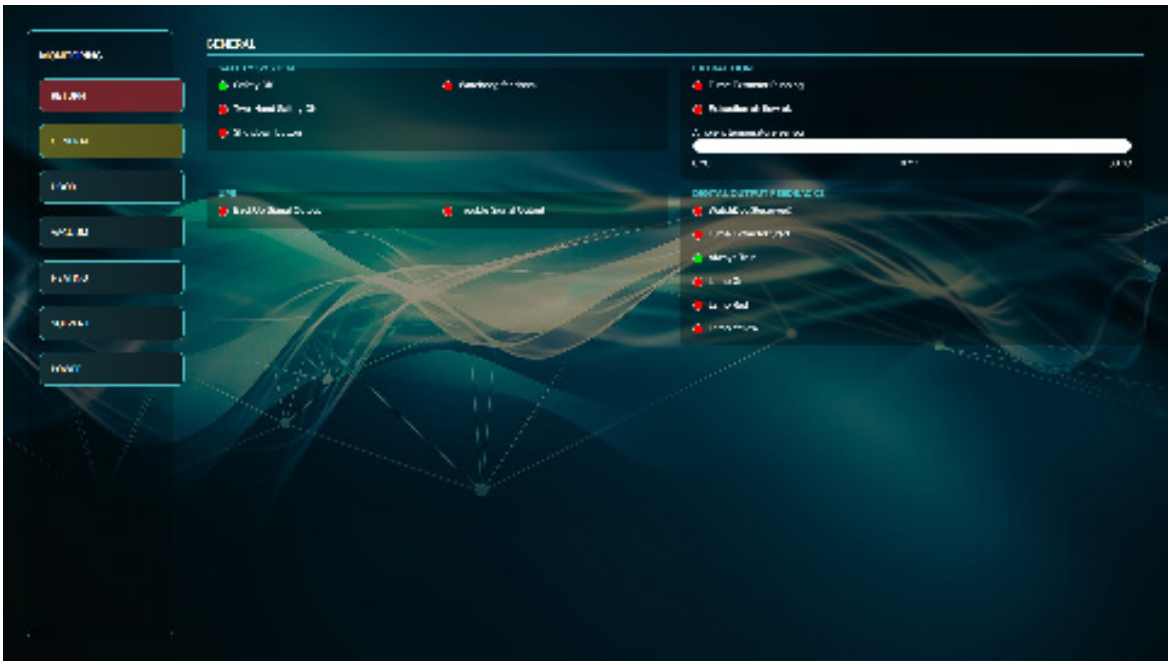
8.8 MONITORING

This screen provides a real time overview of the machine's current condition.

• Displays the overall system.

• Shows live sensor readings and other key operating parameters.

• The Monitoring screen is intended as a viewer, enabling operators to check performance and confirm that the system is running within expected ranges.



8.9 MAINTENANCE

This screen is used to display and track regular maintenance tasks required for the system.

• A list of scheduled actions is shown for the operator to review.

• Once a task has been completed, the operator can mark it as “DONE” directly on this page.

This helps ensure maintenance is performed on time and properly logged for future reference.



8.10 TICKET

This screen allows the operator to create a new support ticket whenever an issue or malfunction occurs.

• A ticket can be generated to report the problem directly to the service team.

• The operator enters details about the issue to help with troubleshooting.

• Once submitted, the ticket is logged in the system for tracking and follow up.

This ensures that any technical problems are recorded quickly and addressed in an organised way.



8.11 SETTINGS & INFORMATION

This page provides system information and configuration details.

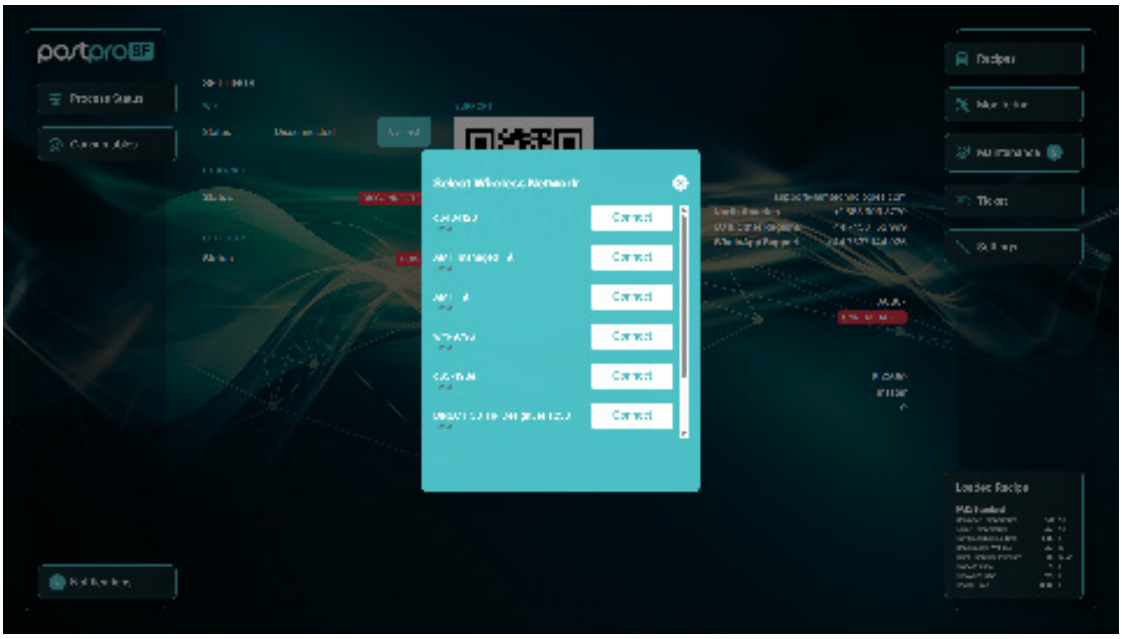
Network: View current network connection details

Software: Check the installed software version

Machine ID: Access machine identification data for reference and service support

Support: Find customer support contact information

This section is intended for operators and service personnel to quickly verify system details and access support when required.



## 9 // PRE-PROCESSING TIPS AND TRICKS

Consistent processing results depend greatly on both the quality of the printed parts and the environmental conditions within the chamber. Well-printed, and clean parts ensure even vapor exposure and predictable surface finishes. Likewise, maintaining stable temperature, humidity, and airflow in the processing environment helps guarantee repeatable results across different batches. Together, these factors are critical to achieving reliable, high-quality outcomes from the SF systems.

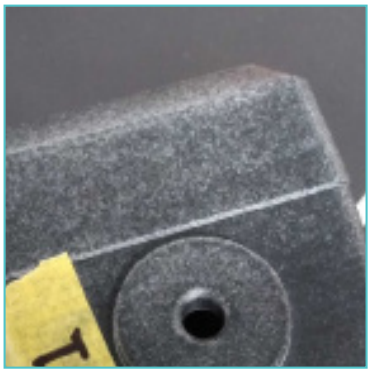
### 9.1 PRINTING

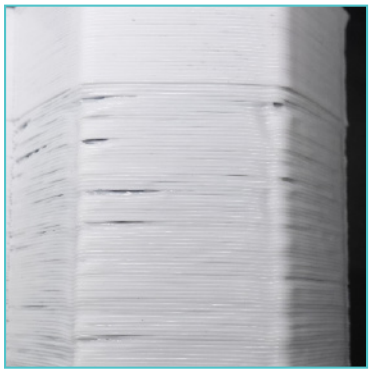
Many printing factors can affect the processing quality, this includes:

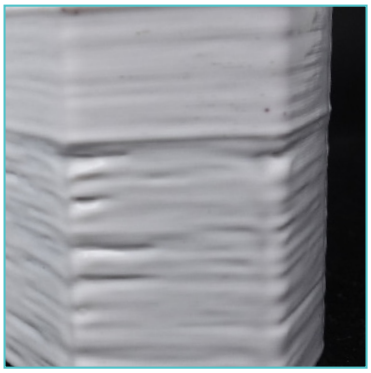
- Design and geometry of the part
- Orientation within the build
- Printing technology used
- Material
- Printing parameters

For example, parts may have large layer lines, poor layer adhesion using FDM technology or have suffered from thermal bleeding during the MJF printing process. Each of these impacts the results of the smoothing process so these issues must be eliminated first.

Please note that if the printing quality is poor,  the post-processed surface quality will be affected.







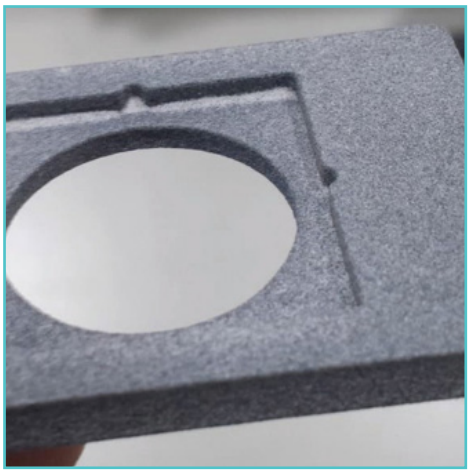
## 9.2 DEPOWDERING

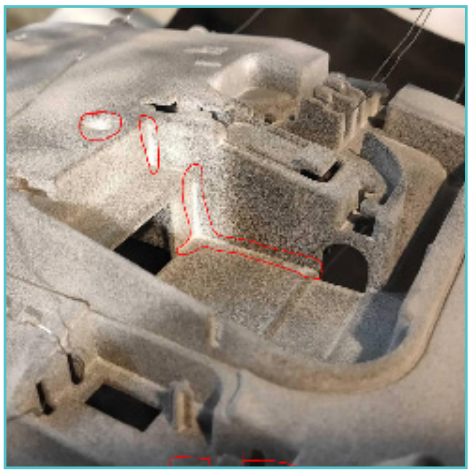
Ensure the parts have been thoroughly depowdered

All powder must be removed from the parts, especially in internal cavities and around sharp features. Poor depowdering leads to poor smoothing results, as residual powder causes imperfections during processing. If necessary, perform a secondary blasting step to remove powder from corners and intricate features.

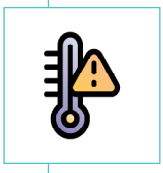
Ensure there is no contamination in the blasting media

Contaminated or poor quality blasting media can transfer impurities onto the parts. To avoid this, blasting media should be filtered and replaced frequently.





9.3 VAPOR SMOOTHING



Part Temperature Before Vapor Smoothing

Try to keep the part temperature as constant as possible before vapor smoothing.

Condensation of the solvent on the surface is highly dependent on the difference in temperature between the part and the solvent vapor. Variations in part temperature may negatively affect the smoothing quality.



To minimize this risk, store parts out of direct sunlight in a temperature and humidity controlled environment, ideally between 18–22°C.



Keep the Vapor Smoothing Room Clean

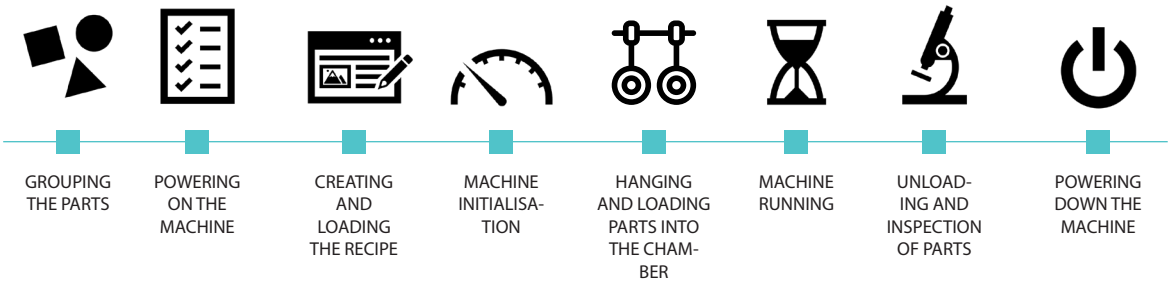
Good housekeeping in and around the machine is essential to prevent unwanted contamination.

• Part surfaces are highly sensitive to dust and other particles from the environment, which become very noticeable after smoothing.

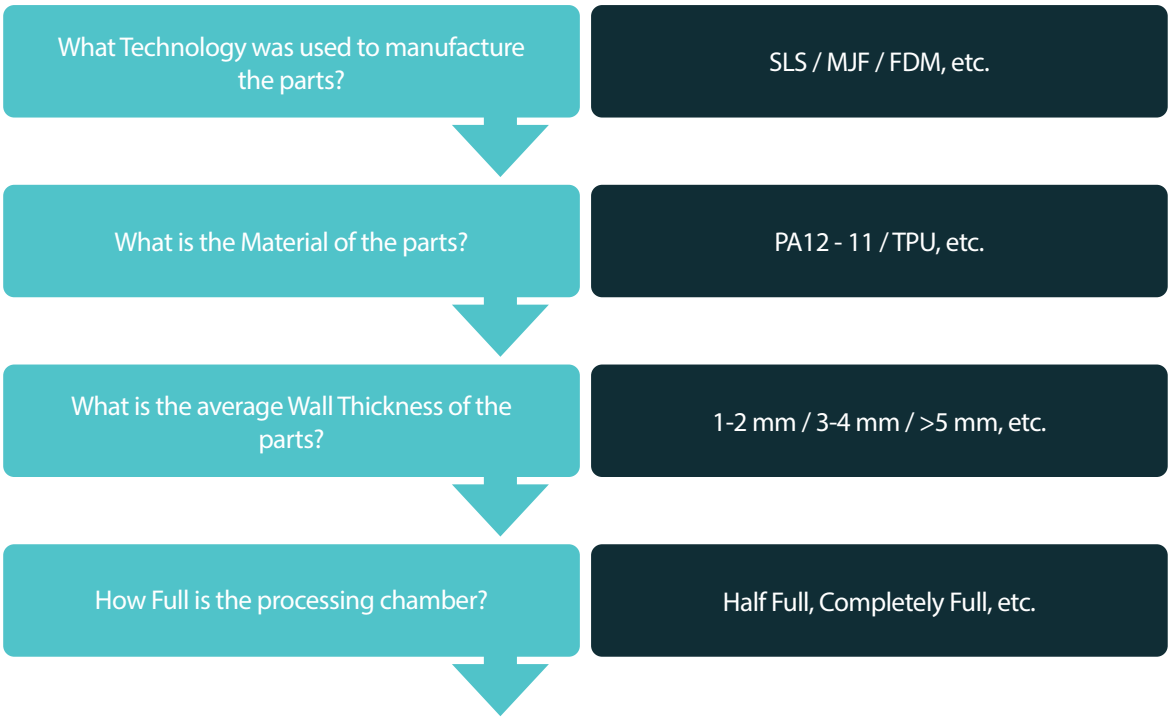
• The processing chamber should be cleaned every day before processing using a lint free wipe and the IPA Cleaning Spray.

Maintaining a clean environment ensures consistent smoothing results and prevents surface defects caused by contamination.

## 10 // HOW THE PROCESS WORKS




### 10.1 GROUPING THE PARTS




Printing Technology
Parts of the same material, printed with different technologies, react differently to and therefore need to be processed separated. The reason for this is down to how they are formed and their properties thereafter.

Material
The same can be said for the material of the part, with each material having a different chemical resistance in relation to the consumable. As a result, more, or less aggressive parameters need to be used to overcome this.

Wall Thickness
Since the PostPro SF relies on a condensation process to deposit the consumable onto the parts, the part temperature directly impacts its effectiveness. As such, depending on the wall thickness of the part, different part conditioning is needed.

Chamber Fill Level
Whilst unrelated to the parts themselves, how full the chamber is will determine how much consumable is required. Here, higher levels of chamber fill need more consumable. The fill level is relatively subjective since it is heavily dependent on part geometries, however it can be estimated using the recommended hanging guidelines.

Part Colour
Finally, only process parts of the same colour together to avoid contamination. If you plan to dye the parts, it is recommended that this is done after smoothing.

Design for Post Processing

Incorporating hanging features into part designs can significantly reduce handling time when loading processing racks and help avoid surface marks.

The most common method is to design sacrificial hooks directly onto the parts. These hooks are used during processing and can be removed afterwards.

Important Note: During processing, the effective weight of each part increases due to solvent absorption. Combined with surface reflow, this can put additional stress on the hooks. If the hooks are not sufficiently strong, they may break and cause part damage.

To ensure safe and reliable processing:
• Design hooks with additional structural integrity to support both the part and solvent load.
• Increase the thickness of hooks or include multiple hooks where possible to distribute weight more evenly.





10.2 HANGING

Using Stainless Steel Wires and Hooks

Only use materials that are resistant to both solvent and heat when hanging parts. Using incompatible materials can cause them to dissolve, leading to contamination on the parts.

Stainless steel is highly recommended because it is inert, widely available, and reliable for suspending parts on process racks.

To minimize handling issues and surface defects:

• Use thin stainless steel clips, hooks, or welding rods to reduce contact between metal and plastic.

• Reducing metal-to-plastic contact helps prevent visible hanging marks.

• Limiting metal surface area also reduces solvent condensation on the hooks, which helps avoid drip marks forming on the parts.







For optimal results during processing:

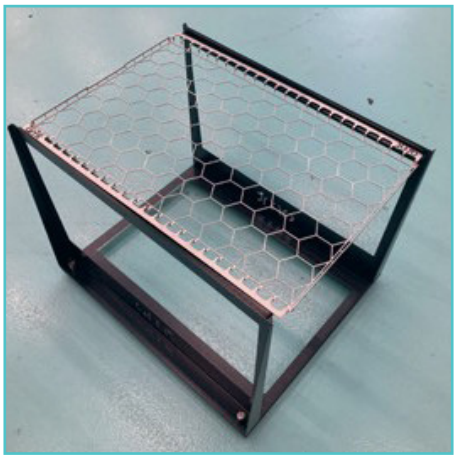
Maintain clearance from chamber walls: Place all parts at least 25 mm away from chamber walls to ensure even exposure and airflow.

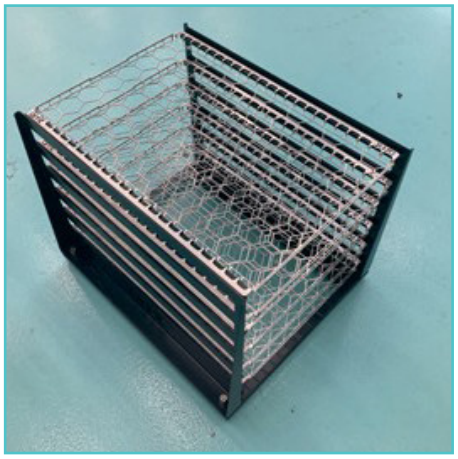
Ensure spacing between parts: Keep a minimum of 10 mm between parts. Parts should never touch each other during processing.

Orient cupping geometries correctly: Hang parts with cupped or recessed geometries facing downward at a 10° to 20° angle. This prevents solvent pooling and ensures proper drainage.

Minimize contact points: Reduce the number of contact points between clips/wires and the part. This helps to minimize the severity of witness marks left after processing.







Additional Notes on Hanging and Placement

Prefer central placement: Place racks or parts in the center of the chamber for even airflow and solvent exposure.

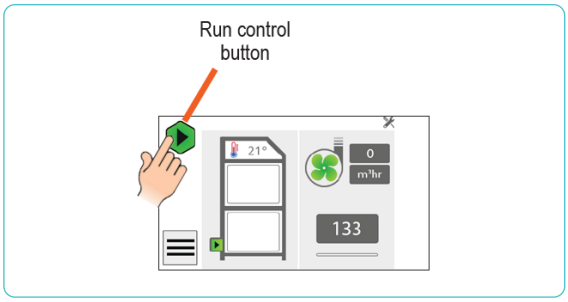
Handle softened parts carefully: Parts may soften during processing. Ensure they are securely hung and supported.

Avoid stress on fragile features: Minimize load on thin or weak areas to prevent deformation from solvent and heat.

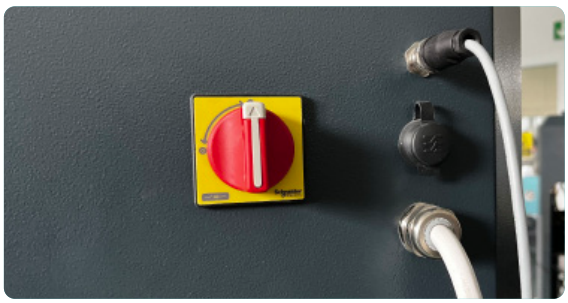
10.3 POWERING ON THE MACHINE

Here is a quick summary of how to power on the PostPro SF. Before starting, ensure that all connections are secure and that the site setup continues to follow AMT's recommendations.

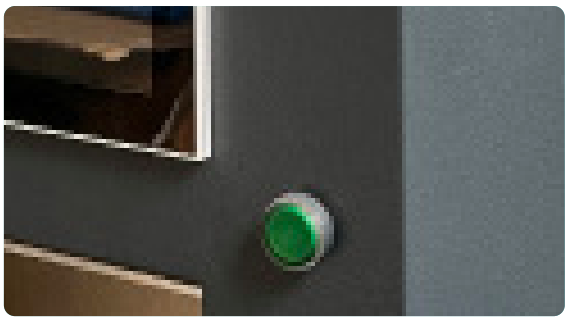
Turn on the external extractor using the standby button on the front.



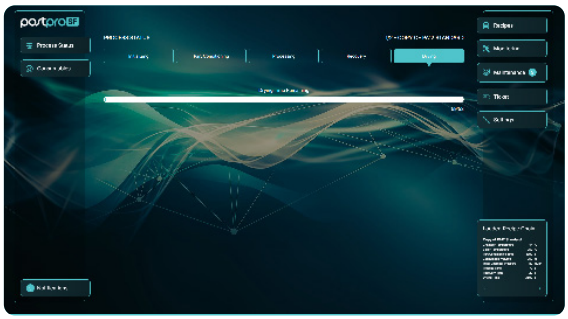

Turn the isolator switch, located at the back of the machine, to the ON position to power on the PostPro SF.



Press the GREEN start button located on the front of the machine to begin operation.

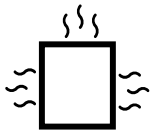


After a few minutes, the SF HMI will display the Main Screen. The system will automatically start the "Drying After Power On" recipe to prepare the machine for operation.



## 10.4 EXPLANATION OF PROCESS PARAMETERS

The machines has four main stages, these are as follows:

| 1 | 2 | 3 | 4 |
|---|---|---|---|
| INITIALIZATION | PROCESSING | RECOVERY | DRYING |
|  |  |  |  |
| The processing chamber is preheated to the required setpoint. Once this temperature is reached, the parts can be loaded into the chamber. | Solvent is introduced into the chamber and condensation takes place. This causes the surface of the parts to reflow and smooth. | After processing, the used solvent is extracted and recovered from the chamber to maintain safety and efficiency. | Any residual solvent remaining in the chamber and on the parts is removed, leaving the parts dry and ready for handling. |

### Adjusting Process Parameters

Each stage of the process has its own adjustable parameters. It is important to adapt these parameters based on the material, geometry, and quantity of parts being processed.

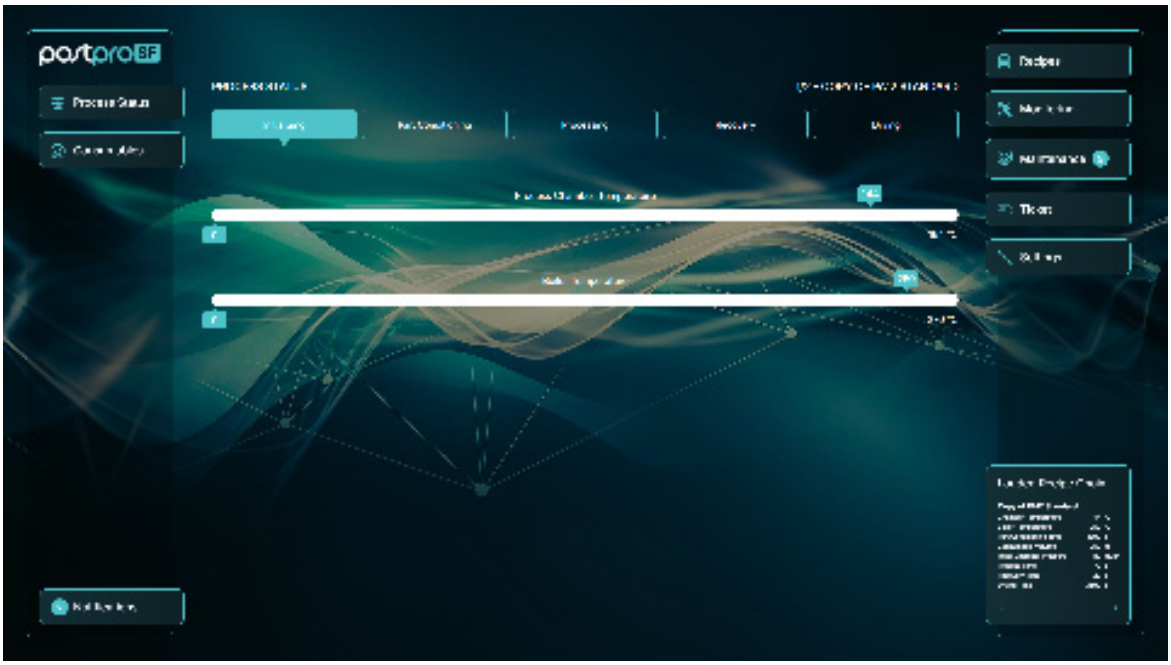
By modifying the parameters, operators can control the outcome, achieving different levels of surface smoothing and sealing to match specific application requirements.

10.4.1 INITIALIZATION STAGE

During the initialization stage, the following parameters can be adjusted:

Process Chamber Temperature (°C): Controls the wall temperature of the chamber during processing. This helps maintain the correct environment for solvent polymer interaction. The setpoint should be adjusted based on the material of the parts.

Solvent Boiler Temperature (°C): Defines the temperature of the solvent boiler. It ensures the solvent is heated to the correct boiling point for vapor generation.



10.4.2 PROCESSING STAGE

During the processing stage, the following parameters can be adjusted:

Process Chamber Initial Pressure (mbar):

The pressure inside the chamber at the start of solvent vapor injection. This creates the correct environment for effective solvent polymer interaction.

Processing Time (s):

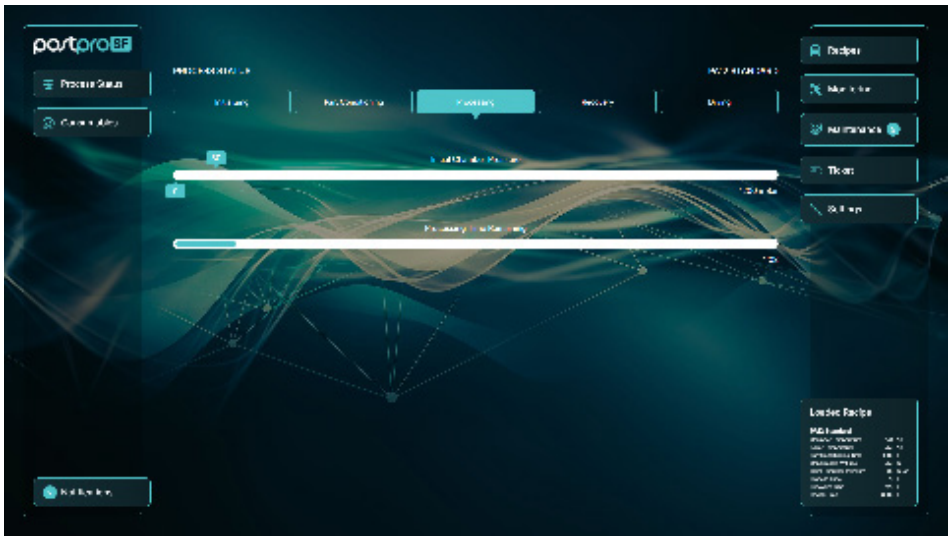
The total exposure time of the parts to solvent vapor.
• Longer processing time increases smoothness and sealing of the parts.
• Excessive exposure may lead to over-processing or part damage.

Consumable Volume (ml):

The amount of solvent dosed into the chamber. The aim is to fully saturate the chamber and cover all the part surfaces.

• The more parts/surface area in the chamber, the higher the consumable volume.

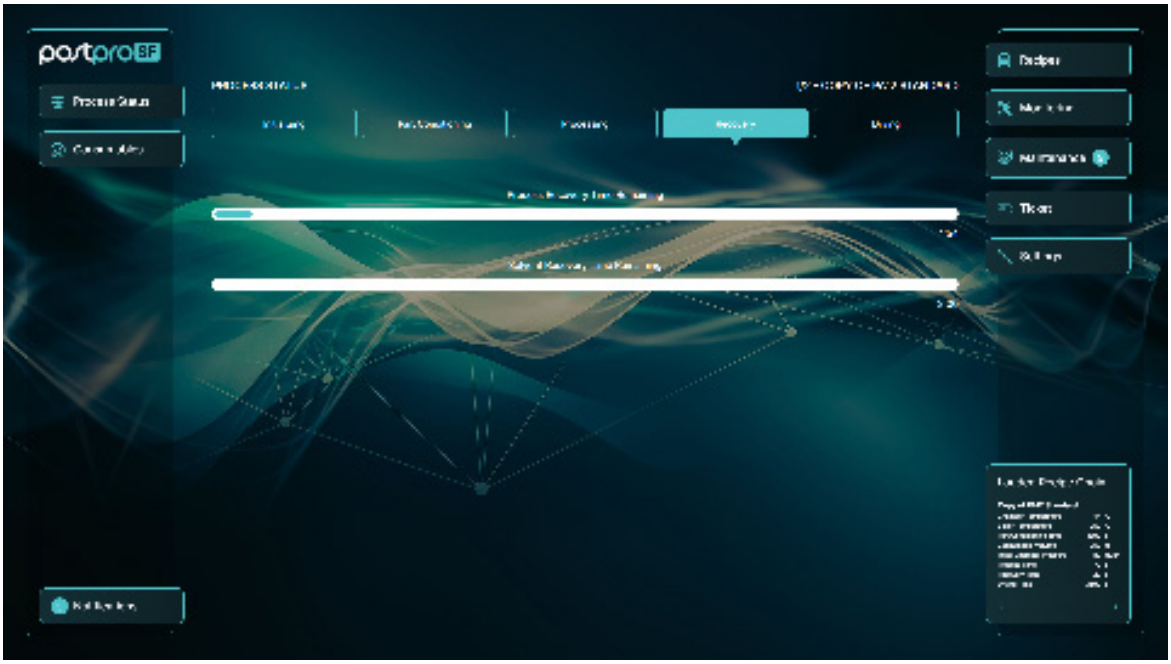
• For smoother parts, more consumable should be used.



10.4.3 RECOVERY STAGE

During the recovery stage, the following parameter can be adjusted:

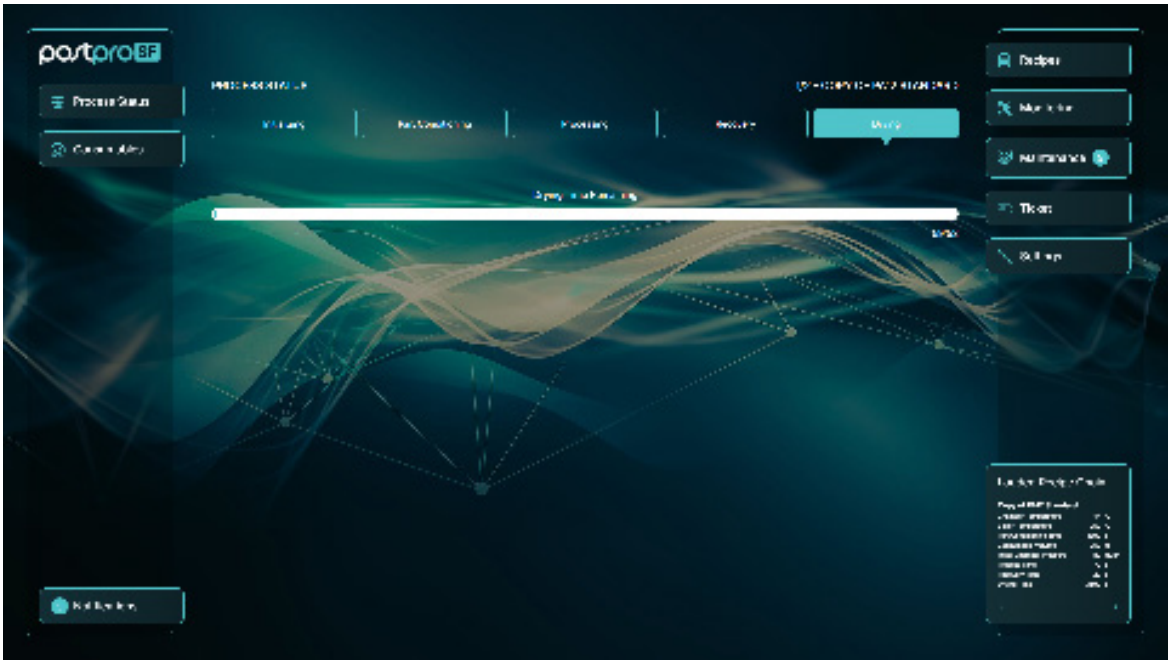
Recovery Time (s): The period during which the machine recovers used solvent from the processing chamber. This is not changed regularly.



10.4.4 DRYING STAGE

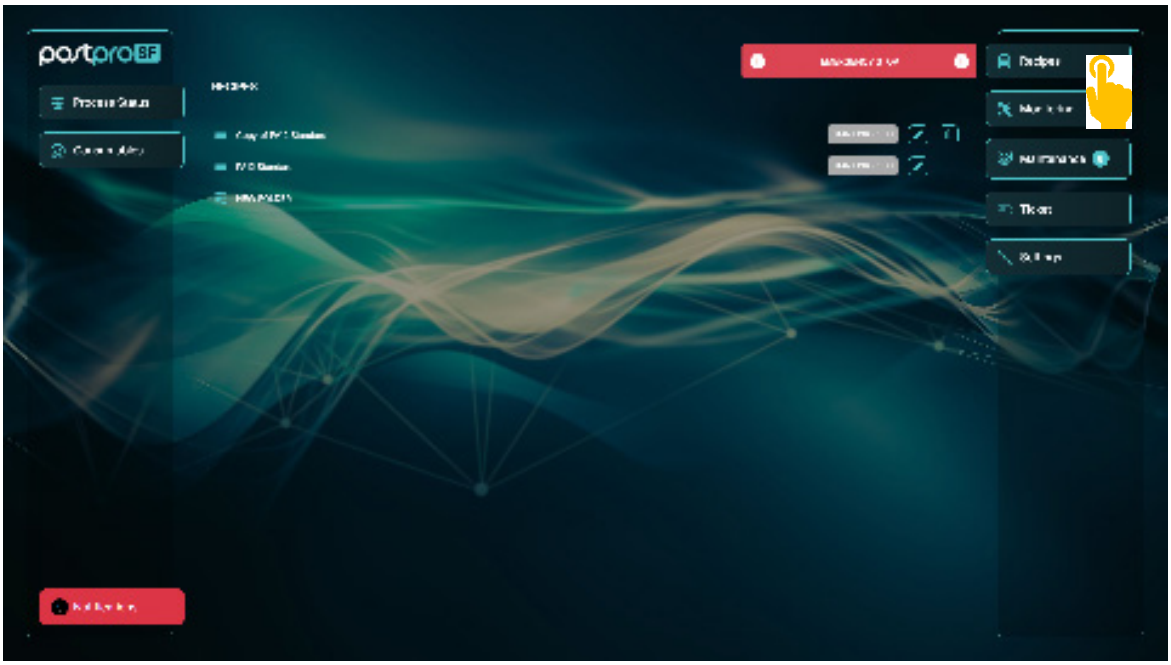
During the drying stage, the following parameter can be adjusted:

Drying Time (s): Duration of the drying cycle during which residual solvent is being removed. This must be at least 3600 seconds to ensure complete solvent removal.

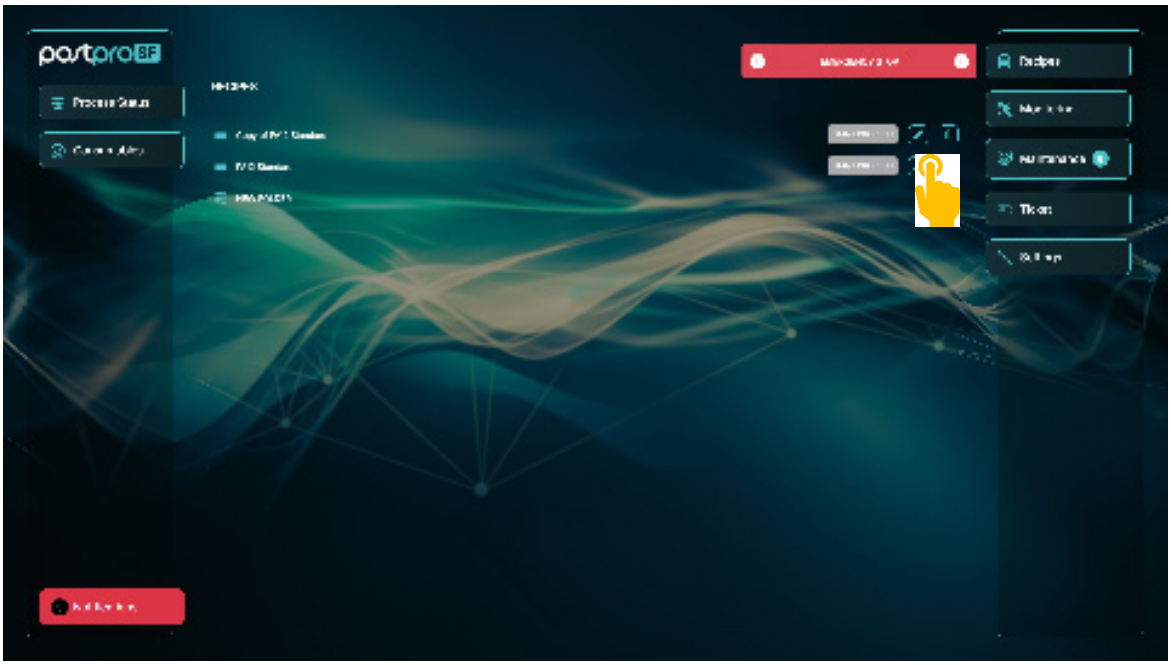


10.5 HOW TO CREATE A RECIPE

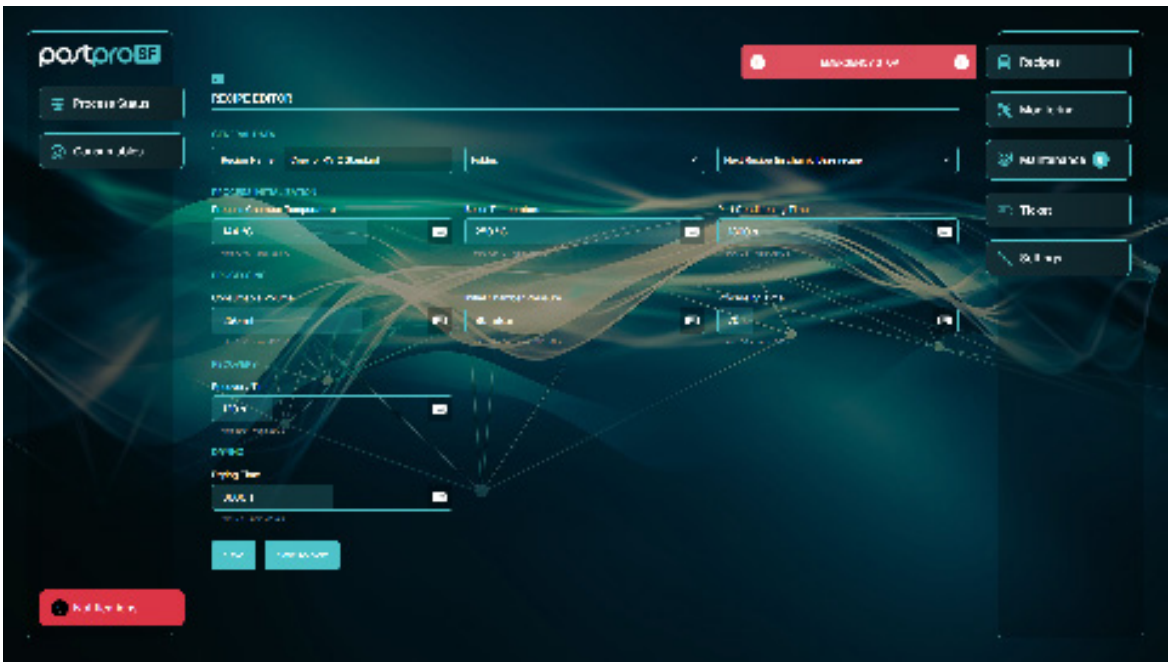
By clicking on the "Recipes" button in the top right-hand corner of the HMI, the HMI will display a list of recipes installed on the machine.



Select the recipe you want to edit or use as the base for a new recipe. To do this, click on the pencil icon at the end of the recipe entry.



After clicking the pencil icon, the recipe will be displayed and all the processing parameters for the selected recipe can be seen.



You can edit a recipe by clicking into the box for the field you wish to change. The four main areas you will typically edit are:

Recipe Name: Always update this to a clear and descriptive name that explains what the recipe is for.

Folder: Recipes can be stored in folders for better organization. If you wish to use folders, select the relevant folder where the recipe should be saved.

Next Recipe: If you want the parts to be processed multiple times, you can select another recipe to run automatically after the current one.

Parameters: Parameters can be adjusted using the keypad that appears when you click into the field.

When you have finished editing, you can either overwrite the existing recipe by pressing “Save”, or create a new recipe by pressing “Save as New”.

10.6 STARTING A PROCESS

Important Note: All of the recommended PPE must be worn when operating the machine.

To begin a new processing cycle, follow the steps below.

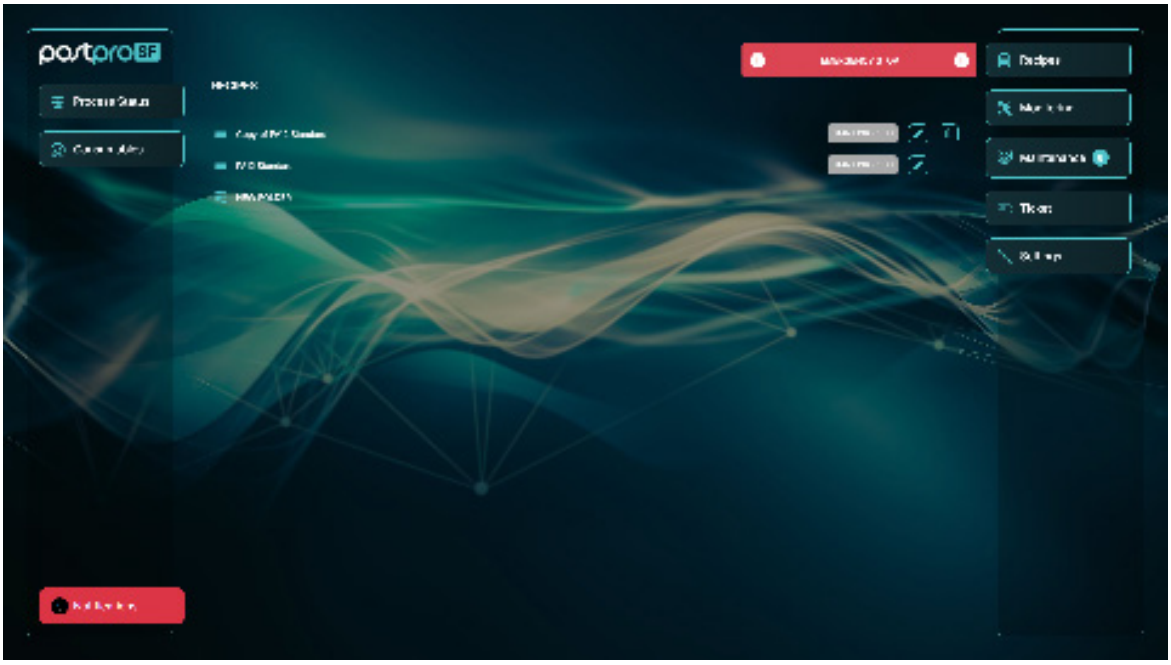
1. From the main page, press the "Recipes" button.

2. Select "START PROCESS" button next to the recipe you wish to run.

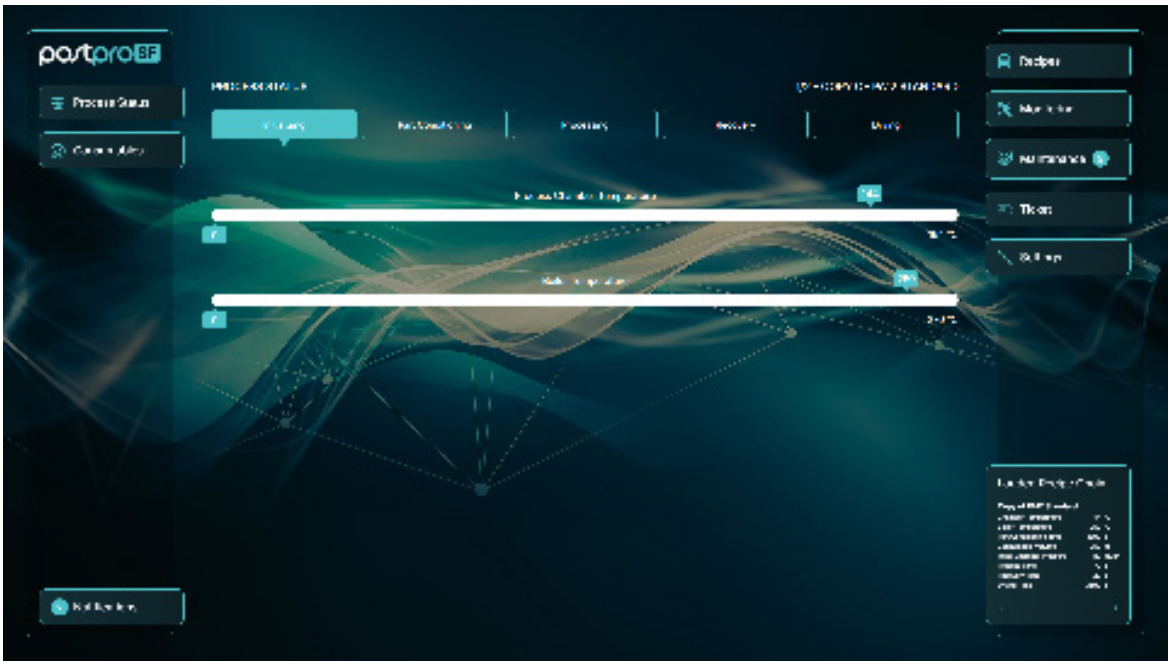
3. Confirm the correct recipe has been selected:

• A small box in the bottom right corner will display the currently selected recipe.

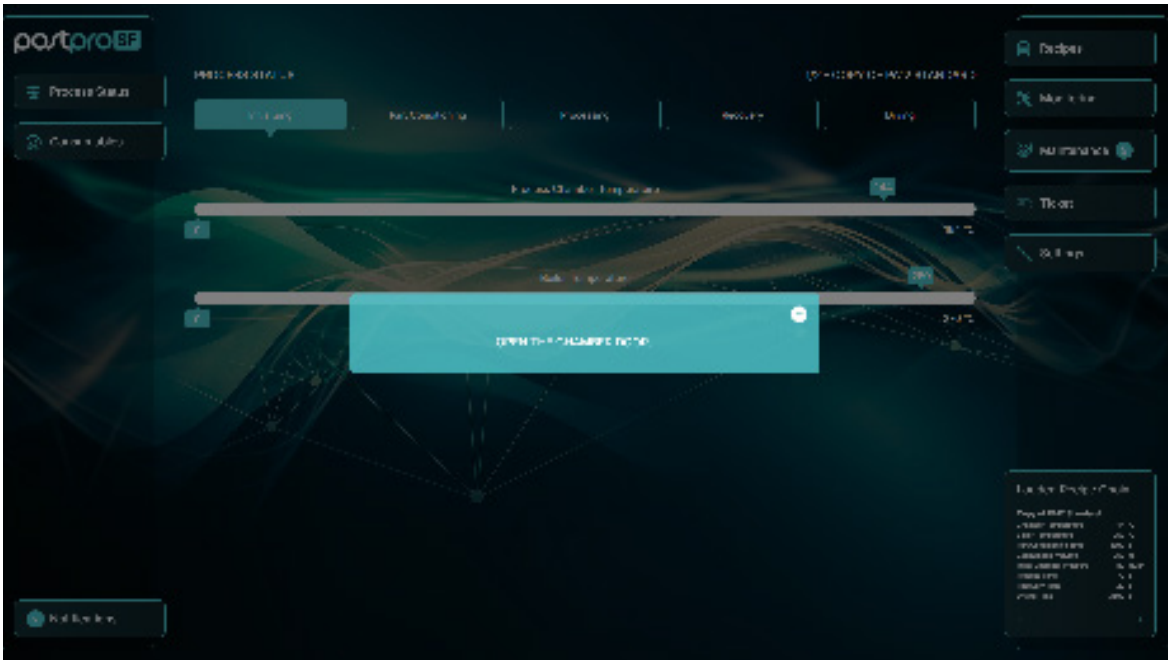
• The selected recipe can also be viewed on the Process Status screen.



By selecting "Process Status", the current machine state is displayed.



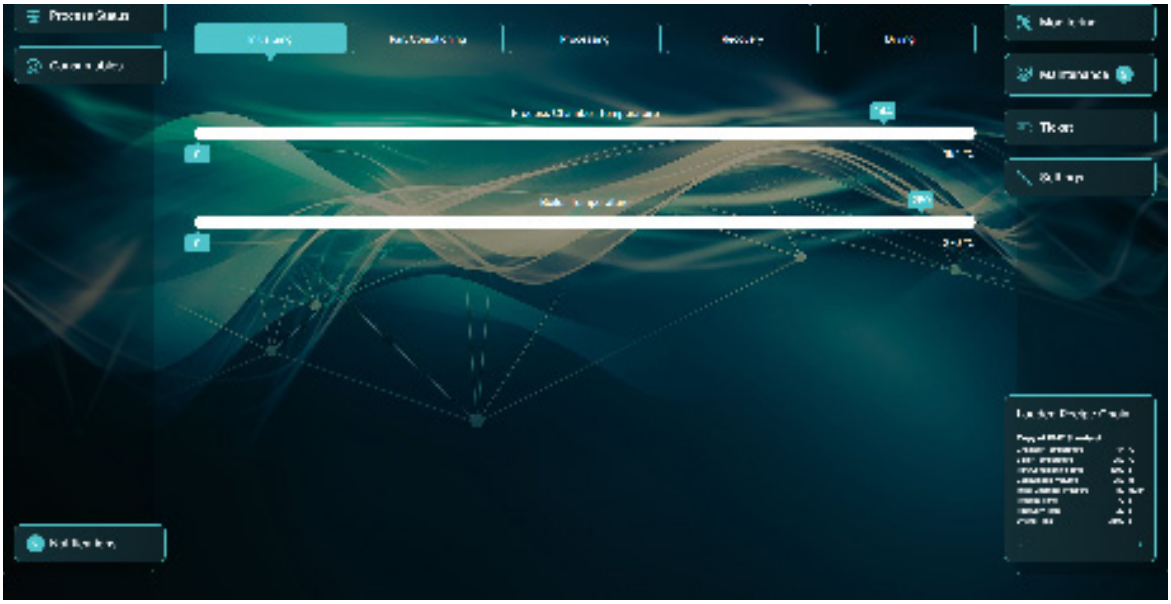
When the machine is ready, press the two-hand buttons on each side of the door until the machine asks you to load the parts. To avoid getting trapped, only one person should operate the door, and they should be at full arms length.



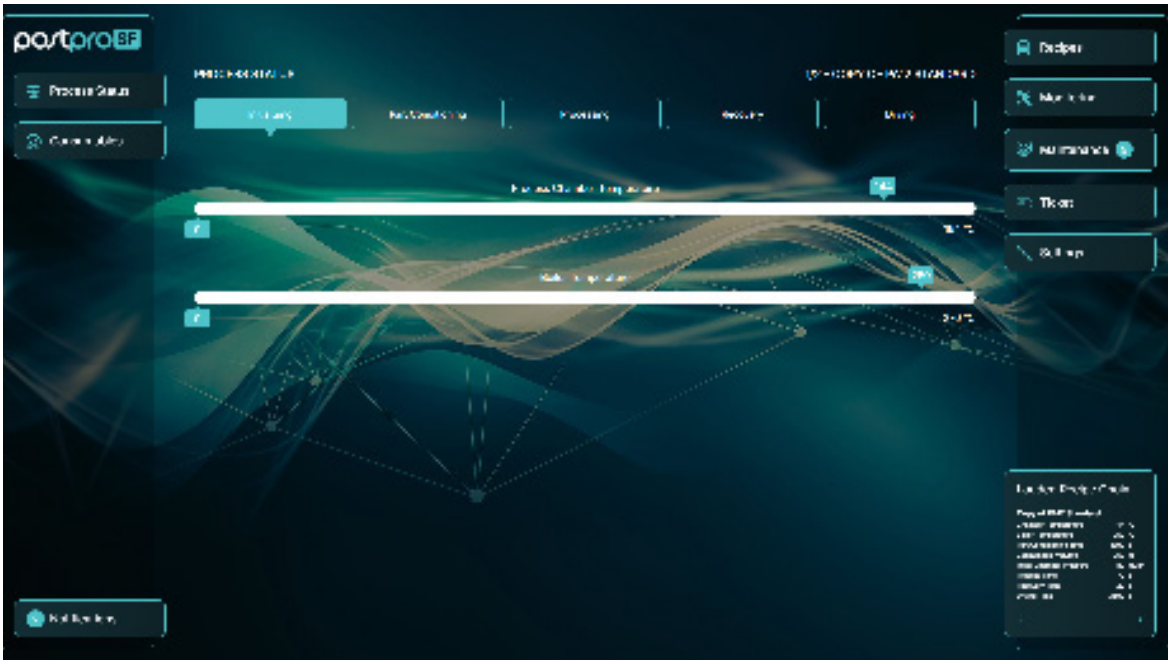
Slide the racks into the chamber carefully, keeping the correct clearances between the parts/walls and ensure the parts are securely fastened. Press "OK" when all the racks have been loaded.

Important Note: Ensure that the diffuser is placed on top of the top rack inside the chamber to ensure the parts are processed correctly.

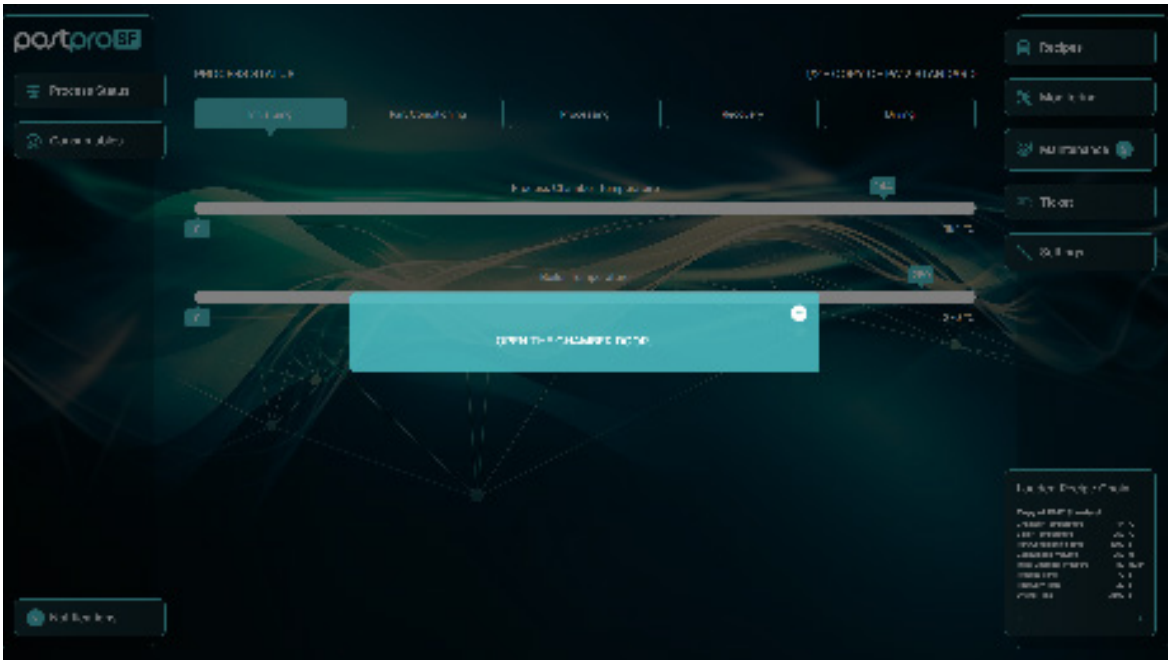
Press the two-hand door buttons again simultaneously to close the door and release them once the Process Status screen re-appears.



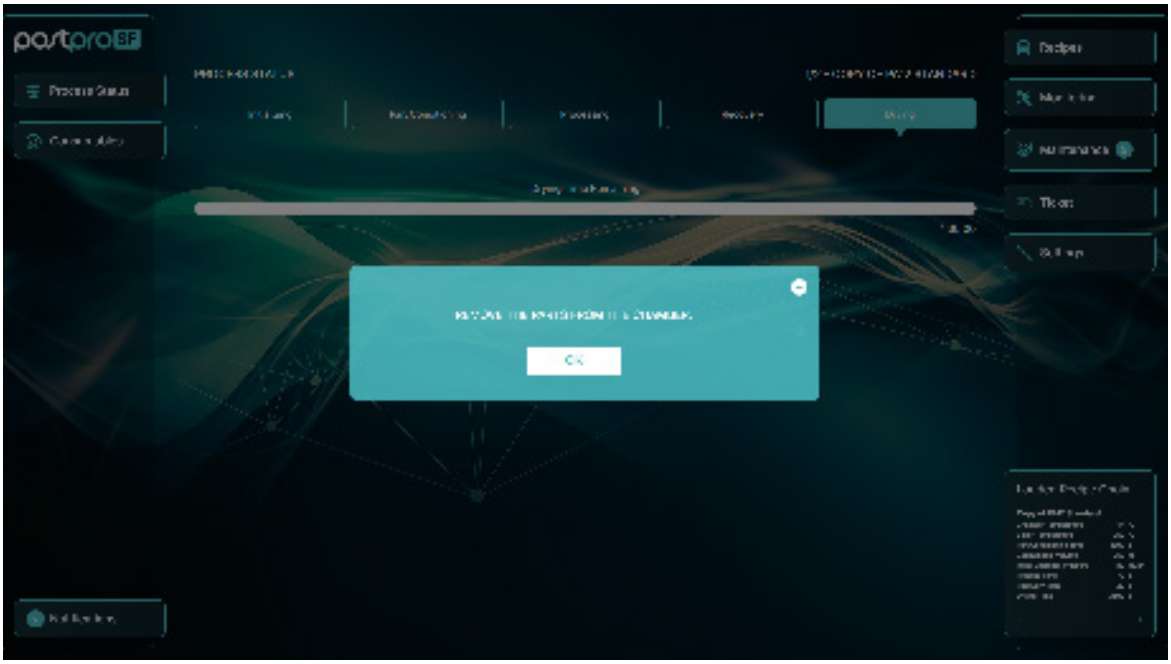
The machine will now run the process. This takes around 2 hours, but does vary slightly depending on the recipe.



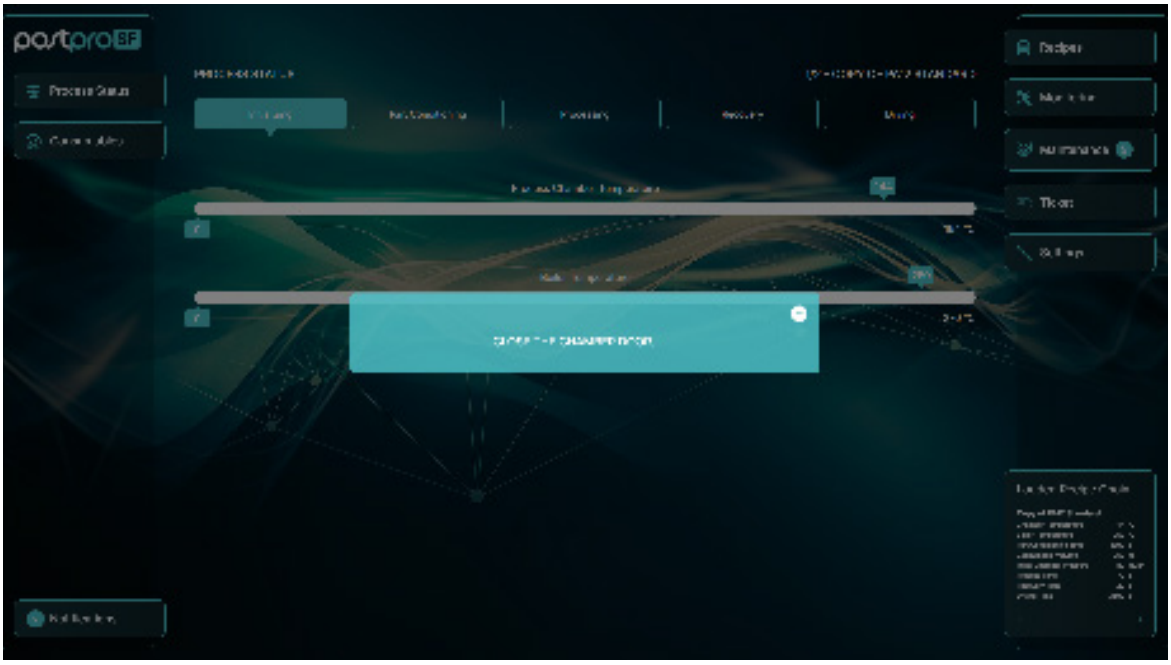
When the machine finishes the process, it will ask you to open the process chamber door. To do this, press the two-hand buttons simultaneously until the HMI asks you to remove the parts.



Carefully remove the parts, making sure to wear heat-resistant gloves and all other PPE when handling the racks.

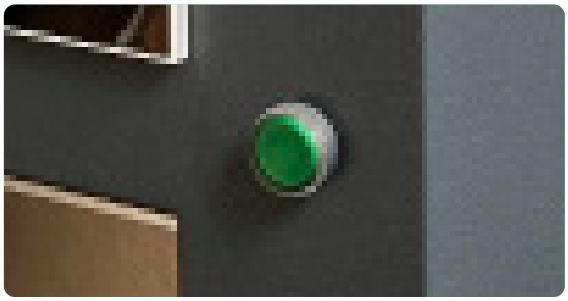


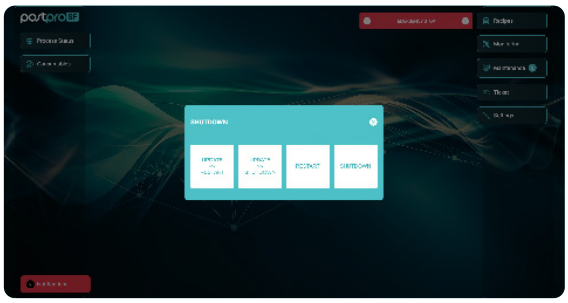
Once the parts are removed, press “OK” and then press the two-hand door buttons again simultaneously to close the door completely. You can release them when the message disappears.



## 10.7 POWERING DOWN THE MACHINE

To power down the system, press the GREEN button at the front then select your preferred option on the HMI.





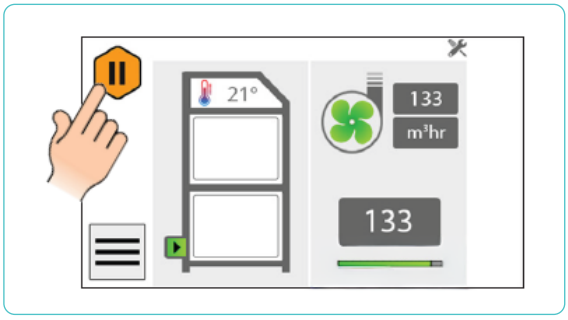
Next, turn the isolator on the rear on the machine to the "OFF" position.



The system will then fully shut down. Due to the UPS (internal battery), it can take 5 minutes to fully power down.

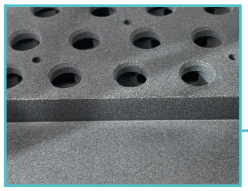


Finally, turn off the external extractor connected to the machine by pressing the green button on the front.

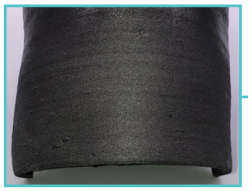



DO NOT ATTEMPT TO POWER BACK ON THE MACHINE UNTIL IT HAS FULLY POWERED DOWN.

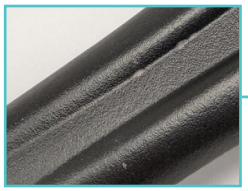
## 11 // TROUBLESHOOTING



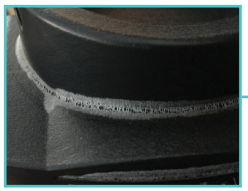
UN-PROCESSED
Parts look the same as when they went in.



UNDER-PROCESSED
Some of the part has smoothed but overall, more smoothing is needed.



SLIGHTLY OVER-PROCESSED
Sharp edges have been rounded and blisters are present in corners.



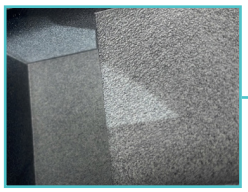
OVER-PROCESSED
Sharp edges are rounded, blisters are present, and the flat surfaces have defects too.



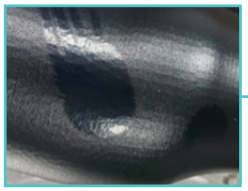
BUBBLES
There are bubbles spread over the surface of the part.



CONTAMINATION
Dust and/or dots of contamination are stuck to the surface of the part.



UN-PROCESSED INTERNAL SURFACES
There is a variation in smoothing between internal/external surfaces.



DRIP MARKS
There are drip marks where the material has been processed more than the rest of the part.

11.1 UN-PROCESSED

Parts look the same as when they went in.

What can cause this issue?

1. The material is not approved for use with the AMT Vapor Smoothing technology and is not listed in the "Compatible Material List".

2. The recipe used is not aggressive enough to smooth the parts.

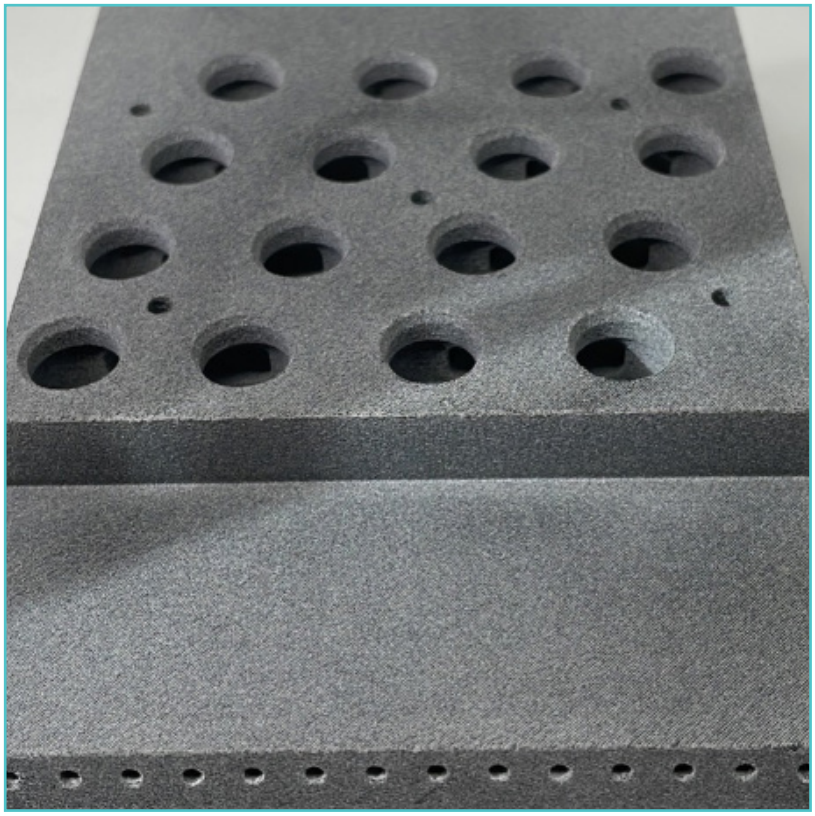
3. Part temperature exceeds the recommended range.

How to fix it?

1. Check the material is listed in the "AMT PostPro Compatible Material List".

2. Ensure the processing chamber pressure, processing time and consumable volume are within the recommended range. If not, increase these accordingly.

3. Store parts in a climate-controlled environment where temperature and humidity can be monitored.



11.2 UNDER-PROCESSED

Some of the part has smoothed but overall, more smoothing is needed.

What can cause this issue?

1. The recipe used is not aggressive enough to smooth the parts:

    Pressure during processing was too low.

    Not enough solvent was used.

    Processing time was too short.

2. Part temperature exceeds the recommended range.

How to fix it?

1. Ensure the processing chamber pressure, processing time and consumable volume are within the recommended range. If not, increase these accordingly. This can vary but typically ranges between 10-40 ml/s/mbar (Depending on how complicated the geometry is and the number of parts).

2. Store parts in a climate-controlled environment where temperature and humidity can be monitored.



11.3 SLIGHTLY OVER-PROCESSED

Sharp edges have been rounded and blisters are present in corners.

What can cause this issue?

1. The recipe used is a little too aggressive to smooth the parts:

    Pressure during processing was too high.

    Too much solvent was used.

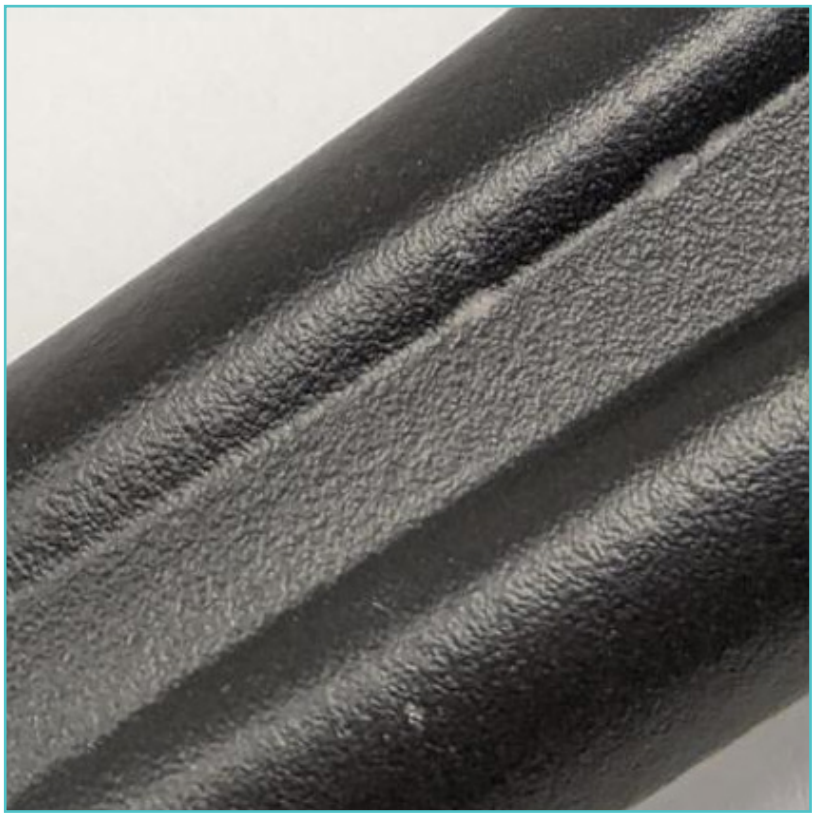
    Processing time was too long.

2. Part temperature is below the recommended range.

How to fix it?

1. Ensure the processing chamber pressure, processing time and consumable volume are within the recommended range. If not, decrease these accordingly. This can vary but typically ranges between 10-40 ml/s/mbar (Depending on how complicated the geometry is and the number of parts).

2. Store parts in a climate-controlled environment where temperature and humidity can be monitored.



11.4 OVER-PROCESSED

Sharp edges are rounded, blisters are present, and the flat surfaces have defects too.

What can cause this issue?

1. The recipe used is too aggressive to smooth the parts

    Pressure during processing was too high.

    Too much solvent was used.

    Processing time was too long.

2. Hanging orientation is not correct.

3. Depowdering was not completed effectively.

4. The chamber was overfilled and caused solvent to drip onto the parts' surface (vapor dripping from the parts or racks)

5. Part temperature is below the recommended range.

How to fix it?

1. Ensure the processing chamber pressure, processing time and consumable volume are within the recommended range. If not, decrease these accordingly.

2. Adjust the hanging orientation.

3. Ensure the parts have been thoroughly de-powdered.

4. Parts hanging neatly to avoid dripping from parts or racks.

5. Store parts in a climate-controlled environment where temperature and humidity can be monitored.



11.5 BUBBLES

There are bubbles spread over the surface of the part.

What can cause this issue?

During the drying cycle, the solvent is extracted slowly from the surface and the boundary layer of the part solidifies resulting in a smooth surface.

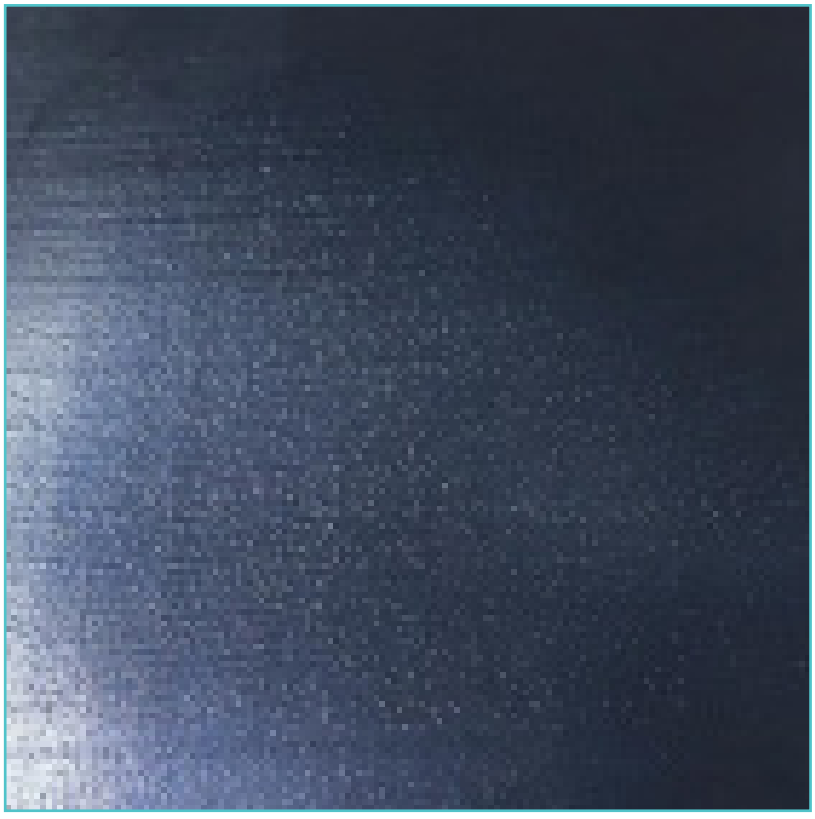
If the drying time is too short the part could be damaged as the solvent is extracted too fast. Especially in FDM parts.

How to fix it?

1. Increase drying time using the recipe book for guidance. (e.g. 600sec > 1200sec)

2. Reduce the amount of solvent.

3. Reduce drying temperature.



11.6 CONTAMINATION

Dust and/or dots of contamination are stuck to the surface of the part.

What can cause this issue? / How to fix it?

1. Bad Printing quality

There have been a lot of impurities before processing (not visible to the naked eye).

The quality of the printing powder is not good enough (It is contaminated or has been reused too many times).

2. Poorly Controlled Preparation

The quality of the blasting medium - cleanliness, humidity - in your depowdering /blasting process.

The handling after the printing

Are they mixed with other parts?

Are the parts left in dirty environments or transported in not clean boxes?

Were the parts placed with similar materials/colours in the same run (same parameters)?

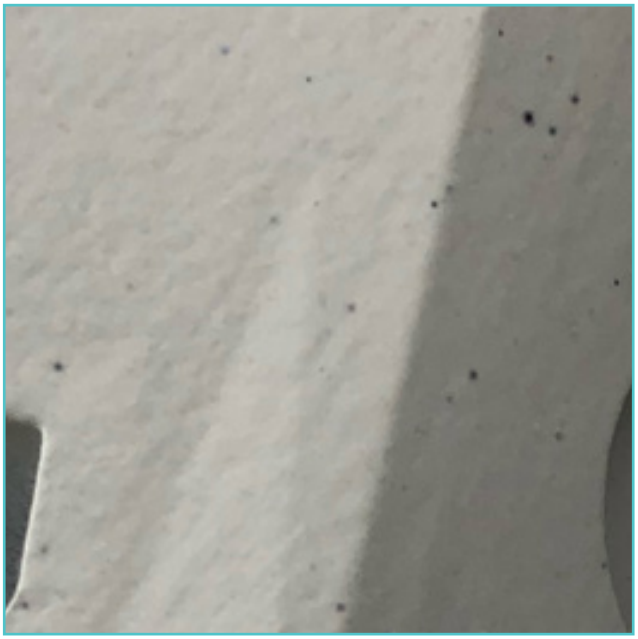
3. Dusty environment and insufficient cleaning process

The environment is not the standards outlined in the AMT Site Preparation Document

Contamination inside the SF.

Is the chamber clean enough?

If you smooth previously dyed parts, some contamination could be left in the chamber.



11.7 UN-PROCESSED INTERNAL SURFACES

There is a variation in smoothing between internal/external surfaces

What can cause this issue?

The vapor cannot enter the internal surfaces easily.

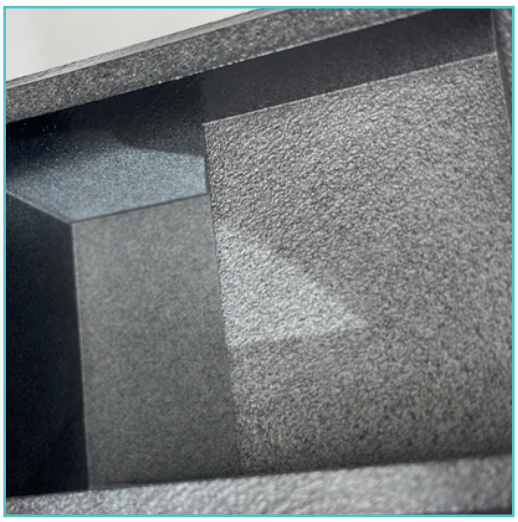
How to fix it?

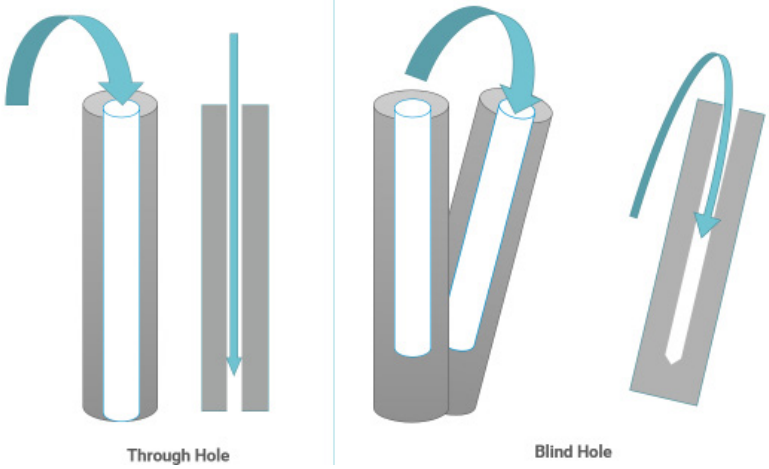
1. Make sure the opening is facing up

2. A slightly inclined angle improves the vapor flow through the hole.

3. The through-hole can be placed vertically, but it depends on the length, geometry, and material.

4. How deep the vapor can go through depends on the length, geometry, and material. In some cases, it may not be possible to smooth the entire internal surface.





11.8 DRIP MARKS

There are drip marks where the material has been processed more than the rest of the part.

What can cause this issue?

- The recipe used was too aggressive to smooth the parts.
- Hanging orientation or method was not suitable.
- The diffuser was not placed on top of the rack.

How to fix it?

- Check the recipe parameters are correct as per AMT's recommendations.
- Adjust the hanging orientation or support the part better.
- Avoid hanging parts directly above one another.
- Make sure the diffuser plate is on the top of the rack.



## 12 // MAINTENANCE SCHEDULE

To ensure continued and ongoing safe and successful operation of the PostPro SF the following maintenance schedule is recommended.

Prior to performing any maintenance procedure the PostPro SF must be switched off and unplugged from the power supply. Auxiliary units must also be switched off and unplugged.

All maintenance activities should be carried out by personnel trained by AMT.

All maintenance activities should be completed whilst wearing the PPE outlined at the start of this manual.

### WEEKLY

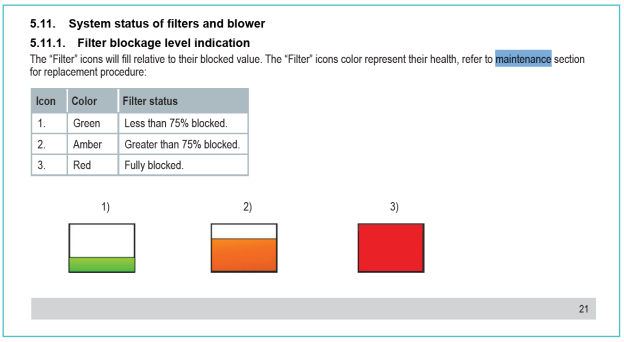
- [ ] Clean the machine and ensure it is free of dust and contaminants.
- [ ] Clean the process chamber with the AMT cleaning solution and lint free wipes.
- [ ] Using a clean cloth apply a silicone-based spray to the sealing surface of the door, especially around the chamber (the recommended spray is “novation silicon spray H1”).

### MONTHLY

- [ ] Check the quick release connectors between the canister and the machine.
- [ ] Check consumable line tubes and fittings for possible leakages.
- [ ] Check the vacuum pump coupling and fan are clean.
- [ ] While processing, check vacuum pump pressure and temperature readings.
- [ ] Check the door cable to see if there is any damage.

### YEARLY

- [ ] Replace the quick fitting on the machine side.
- [ ] Replace the filters in the external extractor.
- [ ] When the system filter level presents a red color or Fully Blocked.
- [ ] Contact AMT to calibrate flowmeters.



**5.11. System status of filters and blower**

**5.11.1. Filter blockage level indication**

The "Filter" icons will fill relative to their blocked value. The "Filter" icons color represent their health, refer to maintenance section for replacement procedure:

| Icon | Color | Filter status |
|---|---|---|
| 1. | Green | Less than 75% blocked. |
| 2. | Amber | Greater than 75% blocked. |
| 3. | Red | Fully blocked. |

1) 2) 3)

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## 13 // DECLARATION OF CONFORMITY



# EC DECLARATION OF CONFORMITY

This Declaration of Conformity is the original Declaration of Conformity according to Directive 2006/42 / EC.

**Additive Manufacturing Technologies Hungary Kft.**
8200 VESZPRÉM, GÉPRAKTÁR UTCA 1.

We declare under our sole responsibility that the product is of the following type

**Chemical Vapor Smoothing Machine SF Series**

to which this declaration applies comply with Appendix I to Directive 2006/42/EC safety and health requirements for Compliance with the safety and health requirements of the EC Directive the following standards and / or technical specifications have been considered:

**MSZ EN ISO 12100:2011 // MSZ EN ISO 13849-1:2016**
**MSZ EN ISO 12921-1:2005 // MSZ EN 60204-1:2019**
**MSZ EN ISO 13851-1:2019 // MSZ EN ISO 14120:2016**
**MSZ EN ISO 12921-4:2005**

Veszprém, May 25, 2022

amt postpro®

## 14 // CONTACT INFORMATION

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