MYYARD
Startup From Desk

USER MANUAL

FORMART S®
SMART VACUUM FORMER

Thank you for choosing FORMART S

Please read and follow the below **SAFETY** instruction before START

⚠ Safety

Do not install or operate the machine before reading these instructions carefully.

Turn the machine off and disconnect the AC plug when not in use.

Do not allow the power cord to hang (e.g., over the edge of a table or counter) or place/run the power cord under rugs, carpeting, or in high-traffic areas where it may be tripped over or pulled.

Do not use FORMART near gasoline, paint, or flammable liquids, as there may be a risk of fire or explosion.

Only use FORMART for vacuum forming. It is not intended for any other purpose.

****Important:****
To prevent the risk of fire, it is crucial that the vacuum forming machine is only operated under supervision. This precaution is especially important when the machine is being used by children, but it applies to all users.

- Supervised Operation: Always ensure that the machine is used under the supervision of a responsible adult.
- Child Safety: Children should not operate the machine without adult supervi sion.
- Fire Prevention: Proper supervision helps to promptly address any potential issues that could lead to fire hazards.

⚠ Fire

Parts of this machine can reach temperatures greater than 280°C. DO NOT STACK ANY ITEMS ON TOP OF FORMART. There may be a risk of fire.

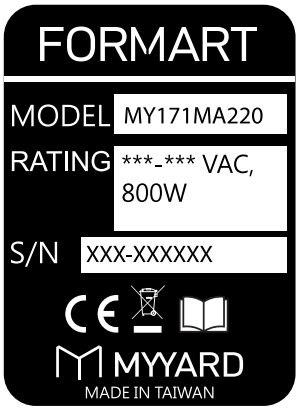
⚠ Injury from Trapping

There is a risk of trapping fingers when loading plastic or pull the top/bottom frames. Ensure that appropriate care is taken to prevent trapping and use suitable personal protection.

Safety

Electric Shock
Never attempt any repair unless the ELECTRICAL SUPPLY IS DISCONNECTED. Only switch ON when all covers have been replaced.

Toxic Fume Inhalation
Assess the risks of the materials to be formed prior to use. Make sure to operate the machine in an adequately ventilated place.



Check your supply voltage and frequency. Make sure it is compatible with this machine's specification plate next to the back power socket.

The heaters within the TOP UNIT can reach 280°C during heating. Never touch the heating element, heater case or heated plastics without wearing protective gloves to reduce the risk of burns.

Handling Instructions for Delivery

1. Inspect Packaging Integrity
   Before unpacking, check each package box for any visible damage or abnormalities. If any damage or deformation is noticed, please contact our customer service department immediately.

2. Unpack the Boxes
   Carefully open each package box (PACK 1 and PACK 2). Use appropri ate tools (such as scissors or a utility knife), but avoid applying force directly to the contents inside the packages.

3. Remove and Inspect Contents
   Remove items from the boxes one by one and ensure all parts and accessories are complete. Refer to the parts list in the manual to verify each component.

4. Place the Equipment
   Place the equipment on a stable, dry, and level work surface, en suring there is ample space around it for installation and opera tion.

5. Dispose of Packaging Materials
   Properly dispose of or recycle packaging materials (such as foam and plastic bags). Follow local recycling regulations for proper dis posal.

6. Contact Customer Service
   If you find any missing or damaged parts, please contact our cus tomer service department immediately. We will provide the neces sary support and assistance.

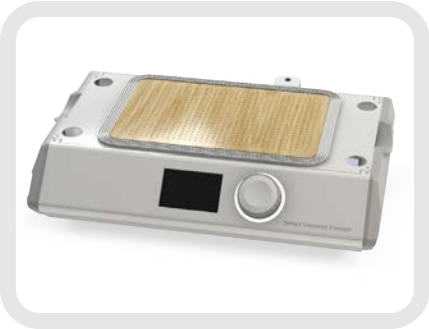
Introduction

FORMART S is a smart Vacuum Forming Machine which produces high definition mouldings with plastic sheet up to 3mm thick. It is ideal for prototype development or small volume production.

Main Features

- Build-in industrail grade pump
- Complete material database
- Time-out protection for heater operation
- Adjustable heating curve
- Sheet dehumidification

FORMART S Parts List:



Bottom Unit x 1

Top Unit x 1

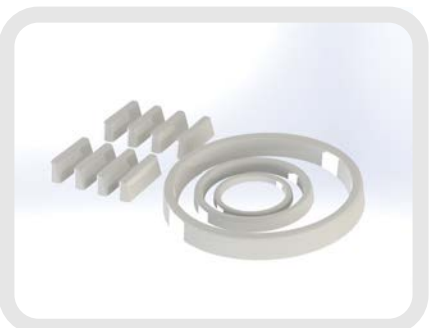
Stainless Tube x 4

Plastic Sheet

User Manaul

Screw & Tool

Cat bowl mold



Webbing Remover Kit

Machine Setup

Machine Setup Guide

Please follow the instructions below to assemble your FORMART S.

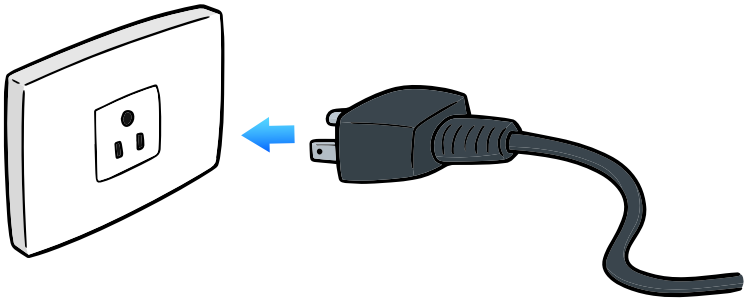
Step 1: Align the tube hole and assemble the 4 tubes by turning clockwise untill tightened

Step 2: Align the top unit with the tubes and put it on

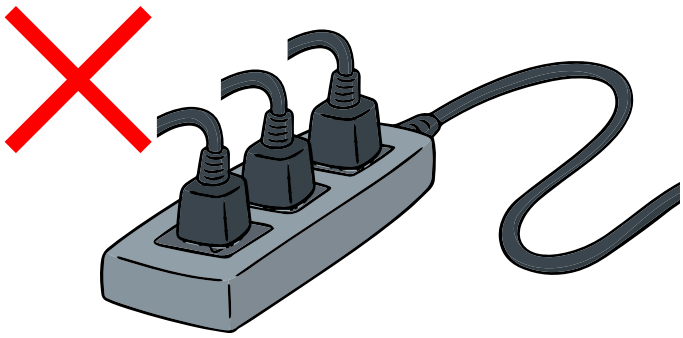
Step 3: Fasten screws of top unit

Step 4: Plug in heater wires

Machine Setup

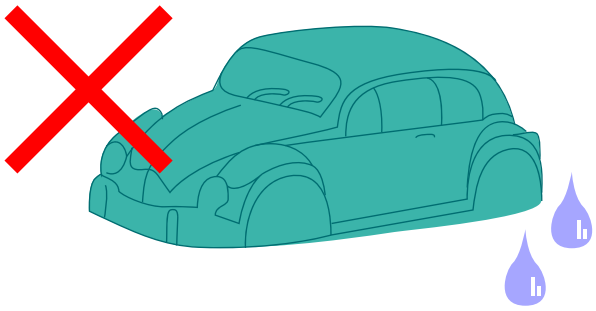


Make sure the plug is fully inserted



Do not share power extension cord

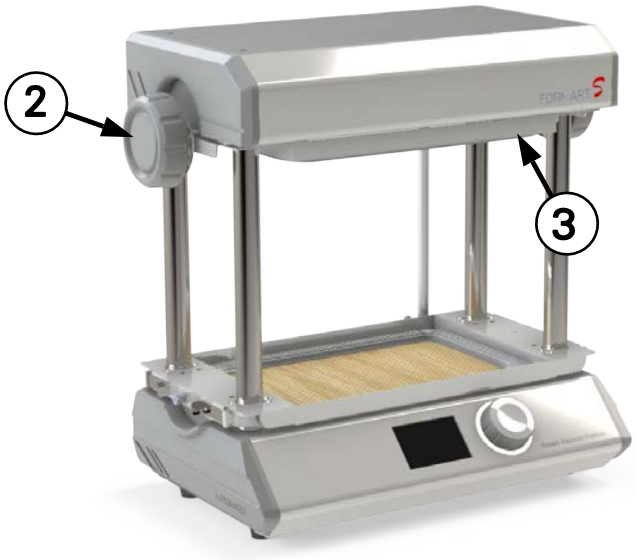
Do not place objects on top of FORMART S



Do not use molds containing liquids

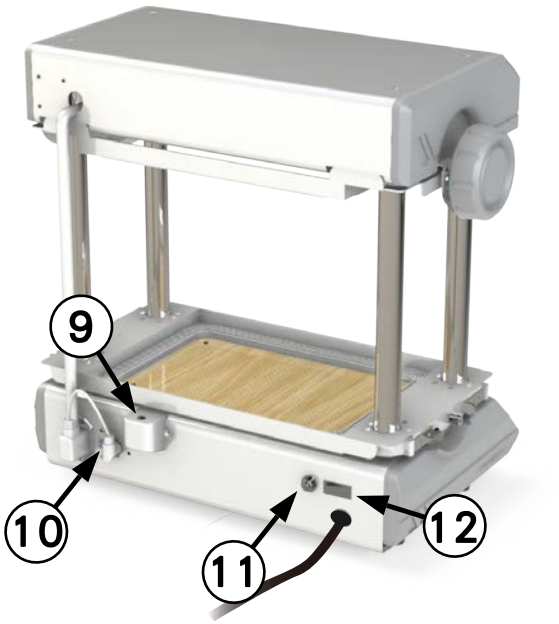
Machine Introduction

1. Heater
2. Side wheel
3. Top frame
4. Bottom frame
5. Forming beds
6. Navigation controller
7. Status LED ring
8. LCD display
9. IR sensor
10. USB connector
11. Fuseless protector
12. Power switch



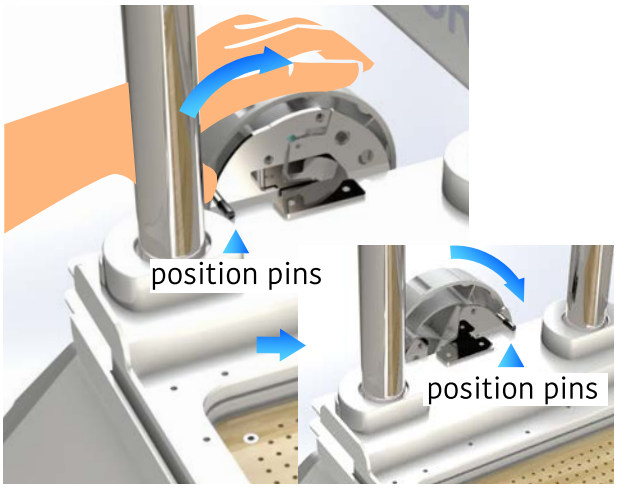
Current Protector
The machine is protected with fuseless current protector. In case of a blown fuse, please do not reset it before consulting service.

ON/OFF switch
The main power switch to provide power to FORMART S.

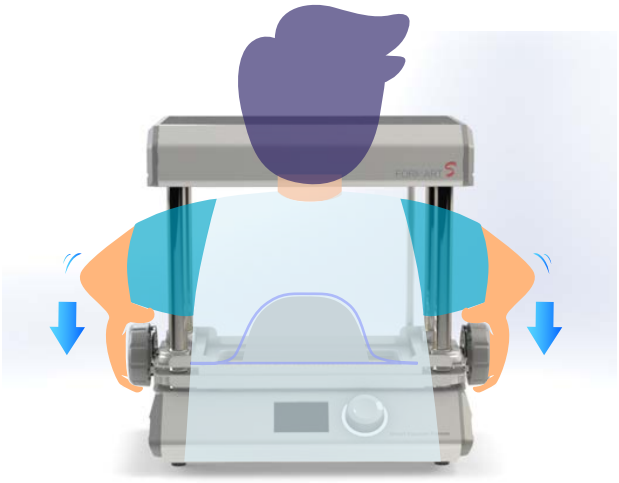


Basic Operation

Top frame operation
FORMART S top frame is held by magnets, once it is released from the top, it will slide smoothly on the steel rails. Be sure to support the frame with both hands when pulling downward to avoid excessive impact to the bottom frame.



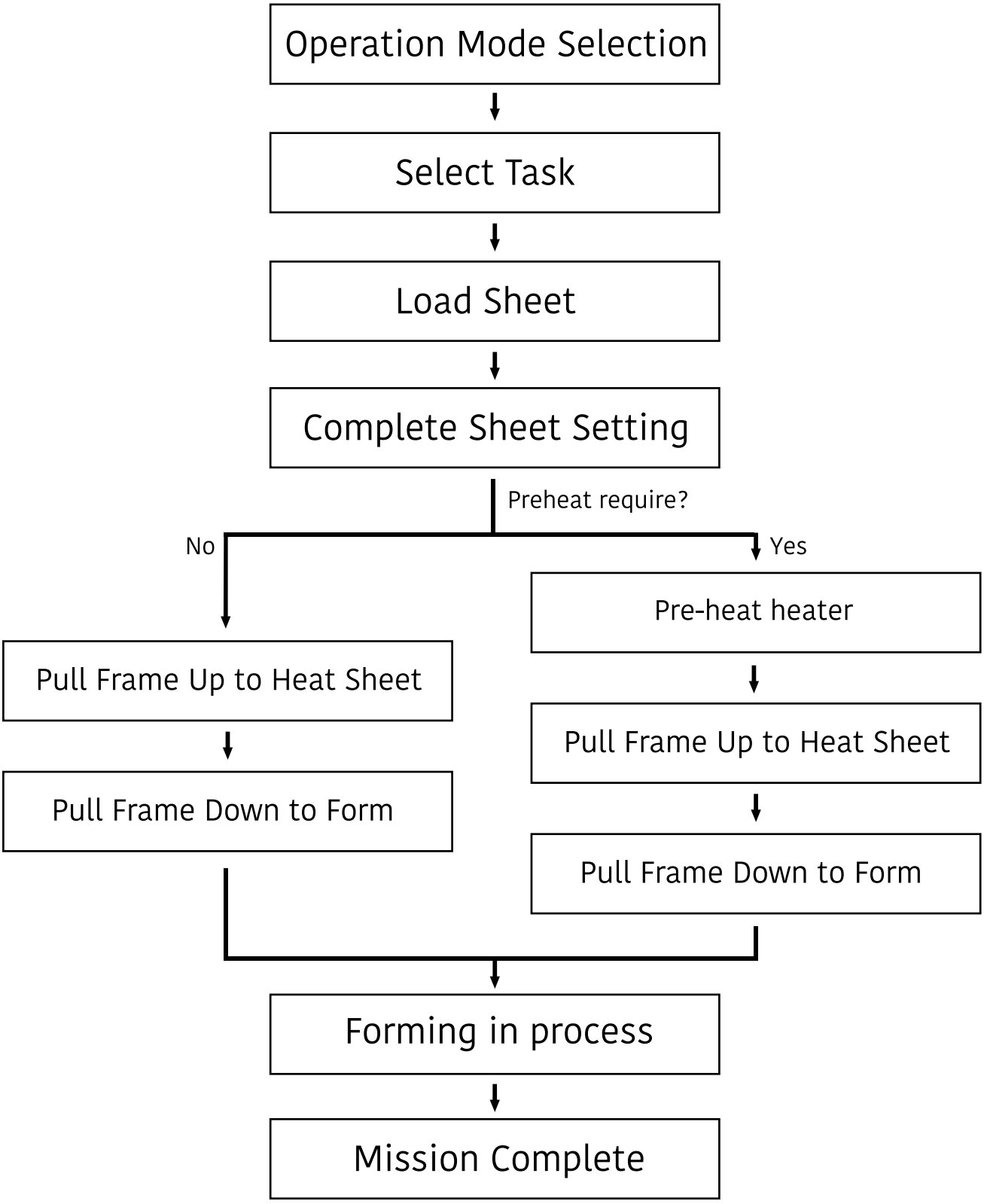
Sheet locker
Plastic sheet is secured in place by two side wheels. Turn forward to lock the sheet and turn backward to release.



Frame down to form
When preparing the frame for forming, gently press the frames to the bottom and wait 3 seconds before releasing your hands. Please do not use excessive force on the frame to avoid damaging the machine.

Emergency stop
The main operation knob is also an emergency stop button. Simply press the main knob whenever you want to cancel the task.

Operation Procedure



Operation Procedure

Select Operation Mode & Task

FORMART S provides two operation modes. **Simple mode** & **Advanced mode**. Rotate the knob to move selection between modes and **press** to confirm.

Simple Mode
The mode is suitable for beginners. With this mode you can form objects by default without dealing with complicated settings.

Advanced Mode
The mode is suitable for professionals. It allows revisions of most settings, including heating curves & forming pressure.

Select Task
Turn knob to select between different tasks.
- Rough: form object with lower pressure
- Fine: form object with highest pressure
- Dehumid: to dehumidify plastic sheet

Load Sheet
Please load the sheet into the frame and align with the sealing rubber then press knob to setup the task.

(Please press the knob and rotate it to select your **Material**, then FORMART S will load corresponding parameters. Repeat above step to set the sheet **Thickness**.)

Operation Procedure

Simple mode

Set Complete

Some sheet materials may require preheating before heating the plastic sheet. Please wait until the heater achieves target temperature.

Pull top frame down and secure the sheet by turning the side wheels forward until they lock. Then pull the frame up to attach it to the top magnet.

Heat the sheet to its target temperature. During this period, please put on the mold on the forming bed.

When the sheet has reached its target temperature, quickly pull the frame down to form over your mold. (Must pull down within 3 seconds if using PET sheet)

Advance mode

Advance Set.

Within advanced settings, you can edit configurations:

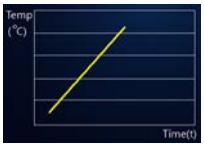
1.LCD bri.: Change LCD brightness

2.Pump Flow: Modify the pump flow to reduce pressure

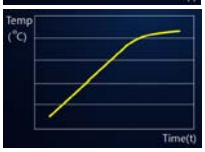
3.Heater setting:

3-1.Preheat: Switch heater pre-heating ON or OFF

3-2.Heating courves: To change heating curves A,B,C



Curve A: Heating sheet in linear curve



Curve B: Heating sheet in parabolic curve

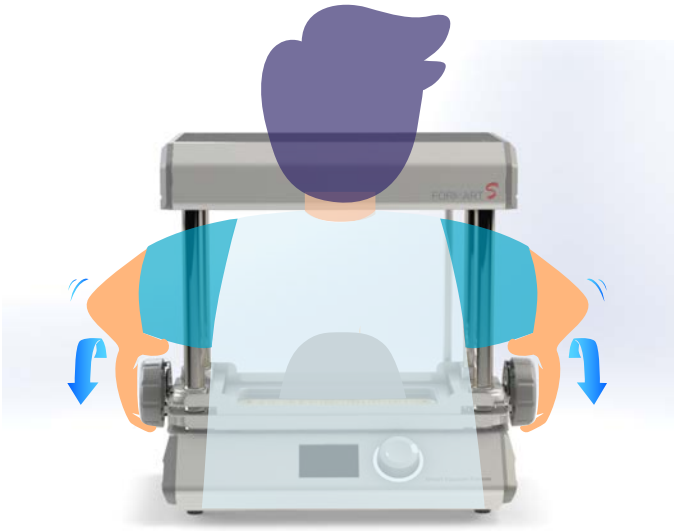
Curve C: Heating sheet in step curve

Tune (1~9): To modify heating speed. Higher value will result in longer heating time.

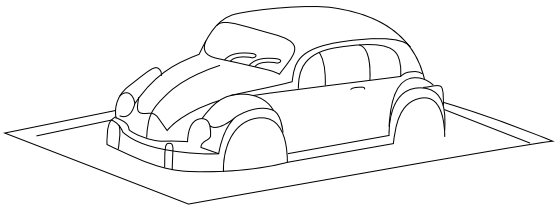
Operation Procedure

Blister forming in process

Task finished. Press to restart.



Turn side wheels backward to release finished blister and pull the top frame up and repeat for the next task.



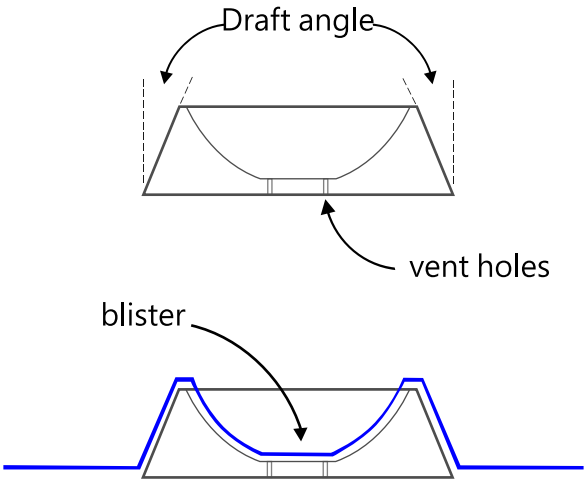
Accessory Instructions

Cat bowl mold

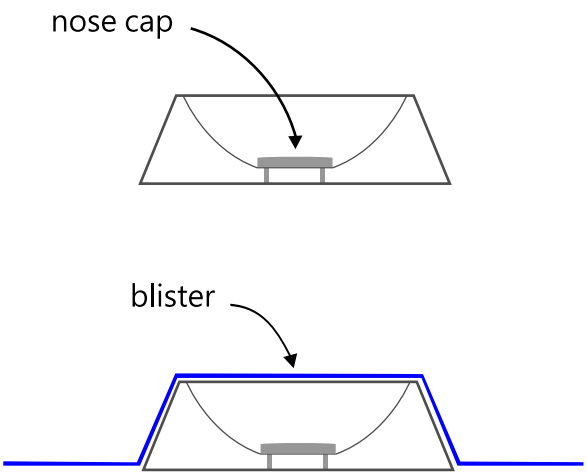
In the accessory box, you will find a cat bowl mold and a nose cap as a reference for your vaccuum mold design. You can use the mold to make blisters and compare the results between wearing the nose cap or without it.

Without nose

With nose



The blister forms smoothly including the center hollow



Nose cap blocks the vent holes and the center hollow cannot be formed

1. When you design a vaccum mold, the draft angle must be larger then 3° to ensure the mold can be easily released out of the blister.

2. Please remember to leave vent holes in the recesses of the mold.

Accessory Instructions

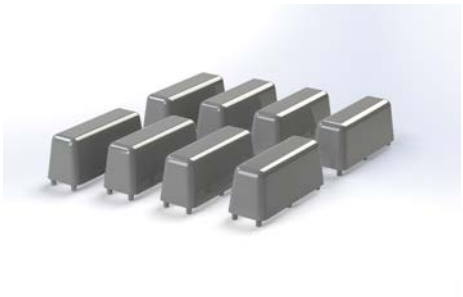
Webbing remover

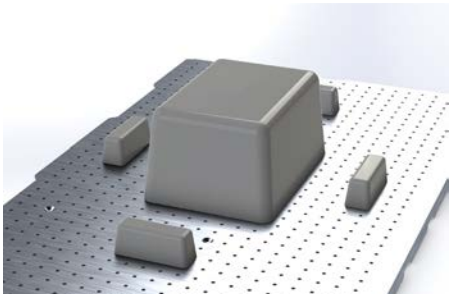
Webbing problem is the most common phenomenon during vaccum forming, especially at corners or taller shapes.

Corner Webbing

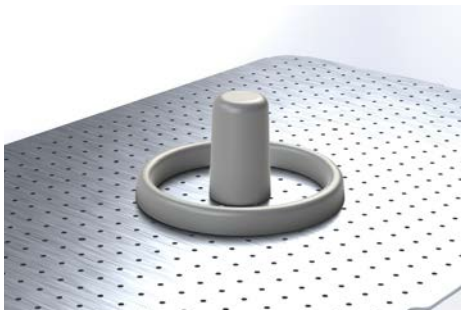
Tall Shape Webbing

1. Webbing remover cubes
   Place the webbing removing cubes in the proper place to minimize corner webbing.





2. Webbing remover collars
   Place you mold in the center of the webbing removing collar to min imize webbing.



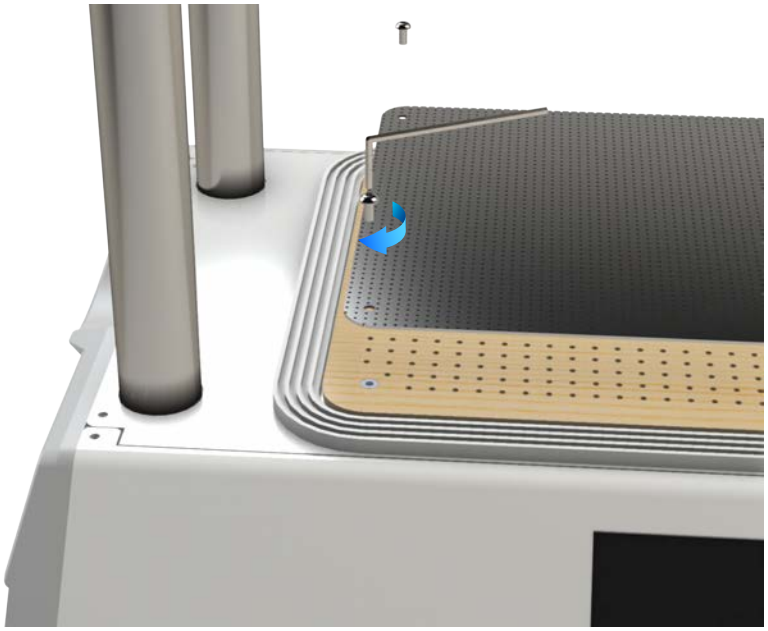
*Those webbing cubes & collars are provided as potential solutions for solving the webbing issues you may encounter. Larger obects may require additional cubes/collars(not provided).

Accessory Instructions

Microporous forming bed(Optional - purchase seperately)

This accessory is used to assist in the forming of fragile plastic sheets to avoid vaccum leaks caused by excessive suction power.

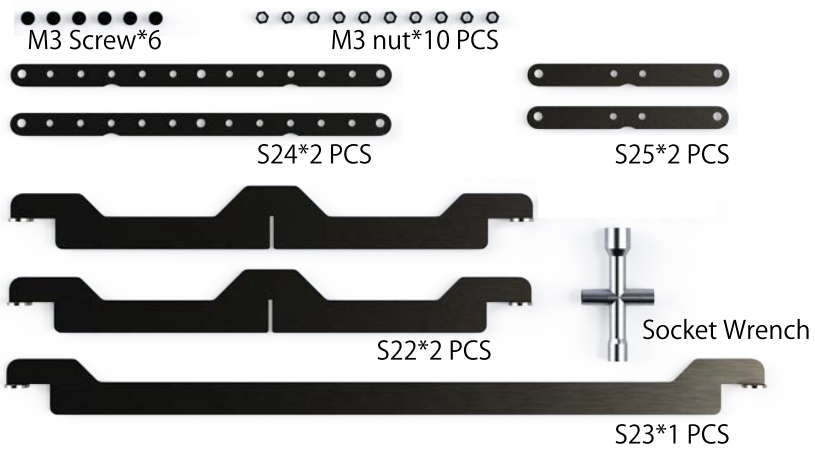
Please follow below steps to install the kit:
1. Remove the four screws from the wooden forming bed.
2. Place the microporous forming piece on the wooden bed and attach the four screws back in place.



Accessory Instructions

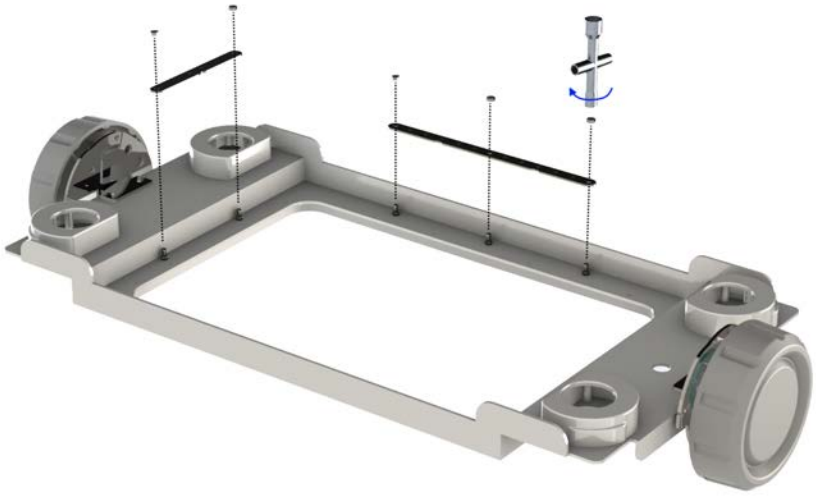
Usage: To eliminate the webbing between two molds

Scan QR code to see video instruction

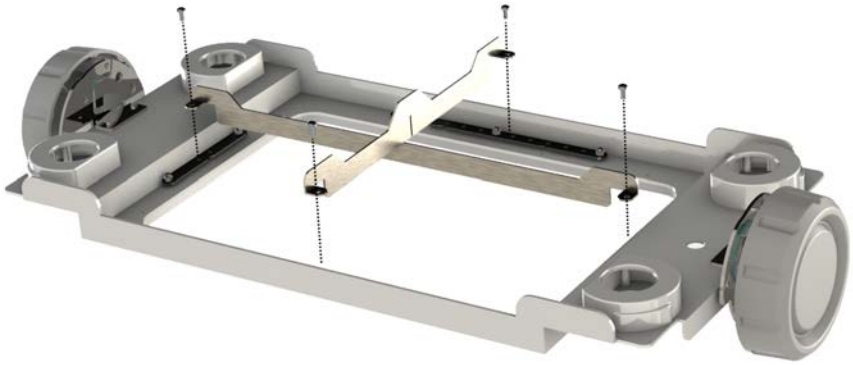


Please follow below steps to assemble the volume control kit:

(Figure 1) Install S24 & S25 in the place as shown below.



(Figure 2) Install S23 & S24 in the place as shown below. Please adjust S22 to the place where you wish to eliminate the webbings.



Maintenance

1. Ensure the surface of the machine and the heater surround is free of dust, dirt and debris.

2. Please remove the wood plate and clean the air filter regularly.

3. FORMART S's 4 steel tubes (frame rails) DO NOT require any lubrication. **Please DO NOT apply any lubricants of on the 4 tubes**.

4. In case of any machice failures, we may require you to return the defect unit. However, please DO NOT disassemble any independent part without authorization, other wise the warranty may invalid.

5. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

Machine Storage Instructions

1. Storage Location
Store the machine in a clean, dry, and well-ventilated area. Avoid loca tions with high humidity, extreme temperatures, or direct sunlight.

2. Surface
Place the machine on a stable and level surface to prevent any tip ping or instability. Ensure there is adequate space around the ma chine for safe handling and maintenance.

3. Protect from Dust and Debris
Cover the machine with a protective cover when not in use to prevent dust and debris accumulation. If a cover is not provided, consider using a clean, dry cloth or plastic sheet.

4. Avoid Heavy Loads
Do not place heavy objects on or near the machine. This can cause damage or affect its functionality.

5. Electrical Safety
Ensure that the machine is unplugged when not in use. Store the power cord and any other electrical components properly to avoid damage or accidental hazards.

6. Regular Inspections
Periodically check the machine for any signs of wear or damage. If any issues are detected, contact customer service for support.

7. Handling Precautions
When moving or relocating the machine, handle it with care and avoid any sudden impacts or drops that could cause damage.

FAQs

Q: Why did my forming fail?
A: There are many reasons for forming failures. Please check if any of the following issues occur:

1. Confirm that the accessories are installed correctly:
   Check if the size switching accessory is properly installed, the size adjustment bar is securely latched, and the corresponding size vent ing base plate is removed. Improper installation of accessories can affect air sealing, leading to vacuum failure.
2. Check if the heating temperature is appropriate:
   Ensure that the plastic sheet used is a thermoplastic material and that the set temperature has reached the target before forming.
3. Vacuum setting:
   The vacuum level setting depends on the detail required in the fin ished mold. For packaging or natural stretch shapes, use a lower vacuum level. For detailed mold duplication, choose the fine mode.
4. Differences in material properties:
   Although most plastics can be thermoformed, different materials and brands have varying composition ratios, and even color can affect the temperature setting. For third-party sheets, use FORMART's built-in database to select the material, color, and thickness to reduce the chance of failure with the built-in heating parameters.
5. Proper vent holes in the mold:
   If the mold has recessed features, the recessed area must be drilled with appropriate extraction holes (1.5-2mm in diameter) to ensure correct forming.

Q: Why did my transparent PET sheet turn white after forming?
A: Whitening can occur if the PET is overheated or heated for too long. Reduce the heating temperature slightly and pull down the frame immediately after reaching the target temperature to avoid overheat ing.

Q: Why did I get webbings on the finished mold?
A: Webbings often occur at mold corners or with tall-shaped molds. Use our webbing remover kits to solve this problem:

- For corner webbing: Use the rectangular webbing remover around the corners of the mold and adjust the distance.

- For larger or specially shaped molds: Redesign the size or change the placement distance of the webbing remover for optimal results.

Q: Why does my mold look unclear?
A: High heating temperatures can cause surface bubbles, wire cracking, or whitening in some plastics like PET. Additionally, if the vacuum is set too high, the smoothness of the mold surface becomes crucial. Polishing the mold or treating its surface can solve this issue.

Q: Why are there small bubbles in the formed mold?
A: Bubbles can form if the material has absorbed moisture. Dry the ma terial before molding. FORMART is the first machine with a built-in dehumidifier function, using the heater to warm the plastic sheet below 90°C to evaporate moisture before forming. This function is crucial in humid climates to reduce bubble formation.

Q: What objects can I use to mold?
A: You can use existing objects, 3D printed parts, etc. When designing the mold, consider the extraction angle (> 3°) for easy removal and ensure mold flatness. Avoid using molds with water or debris, which can damage the pump module. Always clean your object before mold ing.

Q: Will the mold be damaged?
A: The vacuum force exerts pressure on the mold. For thin-shell or frag ile objects, add internal support structures to stabilize the forming process.

Q: Are there any restrictions on mold size and height?
A: FORMART can handle objects up to 160 mm in height, with a maxi mum forming area of 470 mm x 270 mm. Taller molds should have a moderate height-to-width ratio.

Q: Will 3D printed molds withstand high temperatures?
A: Although 3D printed products are not inherently heat-resistant, the thin plastic sheet cools quickly, minimizing damage. Our tests show:
- PLA printed products can be molded about 3-5 times.

- Resin printed molds can withstand hundreds of uses.

For greater durability, after forming the first plastic shell, make a stronger mold by casting cement or plaster before starting produc tion. Ensure the shell thickness of the 3D printed object is thicker than 1.5mm — the thicker, the better.

Q: Will the forming process produce toxic fumes or particles?
A: MYYARD materials are safe, non-toxic, and environmentally friendly. However, there may still be some smell during heating. Use the ma chine in a well-ventilated area. For third-party materials, check with your supplier to ensure compatibility with MYYARD machines. Some third-party materials may release toxic gases when heated, so avoid using the machine in confined spaces.

Specifications

Dimension	502(W) x 464(H) x 312(D)mm
Weight	12.8Kg
Input Power	220~240 or 100~120VAC@800W
Display	3.5" 480*320 Full color LCD
Heater	Quartz Carbon Heater Tubes
Heating Range	90~230° C
Sheet Size	300 x 205mm(A4)
Sheet Thickness	0.3~3.0mm
Pump	80W AC pump
Suction Flow	10~90%
Max. Draw	160mm Max.
Mold Weight	3.5Kg Max

Warranty Terms

1. We provide a two years warranty under normal use on this machine. However, due to the differences of personal operating habits, the fol lowing parts are not coverd by the warranty.
   - Rubber seals
   - Frames & sheet lockers

2. Due to the damage caused by the following cases, we will charge for the repair or maintenance.
   - Damaged by abnormal operation or exceeding the specification.
   - Damaged by incorrect voltage, falling, accidents or natural disas ters.
   - Damaged by unauthorized disassembly.
   - Damaged by unauthorized repairs.

3. MY YARD TECH will pay the shipping costs for the repairs that meet above warranty terms. If repaires exceed those covered by the war ranty, the buyer will need to pay the repair & shipping fees.

4. Warranty terms of service apply only to consumers who purchase our products through legal sales channels.

5. For counter-repair products, buyer should agree with us to replace the failed parts by using alternatives or used parts.

6. We do not authorize the use of this machine or its spare parts in life support equipment. We will not be held liable for any personal injury or death caused by the user’s misuse of our product.

Risk Information

From the initial design phase, FORMART has thoroughly considered user safety and implemented several safety measures. However, some risks cannot be entirely eliminated.

1. **Implemented Safety Measures:**
   - Overcurrent circuit protection(Kuoyuh 88-08-A1B14-P00NB)
   - Overvoltage protection(Meanwell RS-15-5)
   - Surge protection
   - Software timeout protection

2. **Residual Risks:**
   - Improper Operation Risk: Even with comprehensive safety mecha nisms, if the operator does not follow the standard procedures, there is still a possibility of equipment damage or personal injury.
   - Unexpected Hardware Failures: Although the equipment undergoes rigorous testing, unexpected hardware failures, such as motor over heating or electronic component failures, cannot be completely ruled out.
   - Power Failure: FORMART is not subject to any damage or abnormali ty due to power outages. It will reset its internal programs and be ready for operation again when the power is restored. There is no residual risk from power outage.
   - Environmental Factors: External environmental factors that are beyond our control, such as extreme weather or earthquakes, may impact the equipment.
   - Software Errors: While we have software timeout protection, there is a minimal chance of unforeseen software errors that may cause the equipment to stop or encounter other issues.
   - Improper Maintenance: If the user does not follow our maintenance recommendations for regular checks and upkeep, it may increase the risk of equipment failure.

3. **Risk Management Recommendations:**
   - Regular Training: It is recommended to conduct regular training for operators to ensure they are familiar with the operation and safety regulations of the equipment.
   - Regular Maintenance: Perform regular checks and maintenance

according to the equipment maintenance manual, and replace worn parts promptly.

- Backup Measures: Prepare emergency plans when operating the equipment to respond quickly if any issues arise.

EU Regulatory Compliance

FORMART S complies with the following EU Directives and Standards to ensure safety, reliability, and performance:

Directives:

- 2014/30/EU: Electromagnetic Compatibility (EMC) Directive

Standards:

- EN IEC 61000-6-2:2019: Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
- EN IEC 61000-6-4:2019: Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments
- EN IEC 61000-3-2:2019+A1:2021: Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions
- EN IEC 61000-3-3:2013+A2:2021: Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems

By adhering to these directives and standards, FORMART ensures compliance with essential health and safety requirements within the European Union.

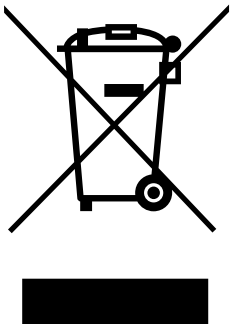
Waste Disposal and Recycling

To comply with environmental regulations and ensure proper disposal of our products, please follow below guidelines:

1. Disassembly and Handling:
   - Prior to disposal, fully disassemble the desktop vacuum forming machine. This includes separating main materials such as metal, plastic, circuit boards, screens, and wires.
   - Ensure proper sorting of materials for subsequent processing and recycling.

2. Material Recycling:
   - Metal Components: Collect all metal components and deliver them to designated metal recycling points or recycling centers.
   - Plastic Components: Gather all plastic components and deliver them to designated plastic recycling points or recycling centers.
   - Electronic Parts: Including circuit boards, screens, and wires, please deliver these to electronic waste processing facilities for safe handling and recycling to prevent environmental and health hazards.

3. Environmentally Friendly Disposal:
   - Do not dispose of the machine in regular trash bins or incinerators.
   - If unsure about disposal methods, seek assistance from local government environmental departments or designated waste disposal centers.



4. Professional Disassembly:
   - It is recommended to have the desktop vacuum forming machine disassembled and handled by professional waste disposal compa nies or recycling centers to ensure compliance with local environ mental standards and safety regulations.
   - We are committed to environmental protection and resource recy cling. Your cooperation will help minimize adverse impacts on the environment. Thank you for your support and cooperation!

For any questions or further guidance, please feel free to contact our customer service department.

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