JT-18 1000W Vacuum Forming Machine User Manual

1. Introduction

This manual provides instructions for the safe and efficient operation of the MLGB JT-18 1000W Vacuum Forming Machine. Please read this manual thoroughly before operating the machine and retain it for future reference.

The JT-18 Vacuum Forming Machine is designed for laboratory and clinical applications, utilizing a heavy-duty vacuum motor for precise heat molding and laminating processes. It is compatible with various thermoplastics.

Figure 1: Front view of the MLGB JT-18 Vacuum Forming Machine.

2. Safety Instructions

- Always ensure the machine is connected to a grounded power outlet with the correct voltage (220V).
- Exercise caution as the heating element reaches high temperatures during operation. Avoid direct contact.
- Do not operate the machine in wet or damp conditions.
- Keep hands and loose clothing away from moving parts.
- Unplug the machine from the power source before cleaning or maintenance.
- Ensure adequate ventilation in the work area to dissipate heat and any fumes from thermoplastic materials.
- Use appropriate personal protective equipment (PPE) such as heat-resistant gloves and safety glasses.

3. Product Components and Structure

Familiarize yourself with the various parts of the JT-18 Vacuum Forming Machine for proper operation and maintenance.

Product Structure

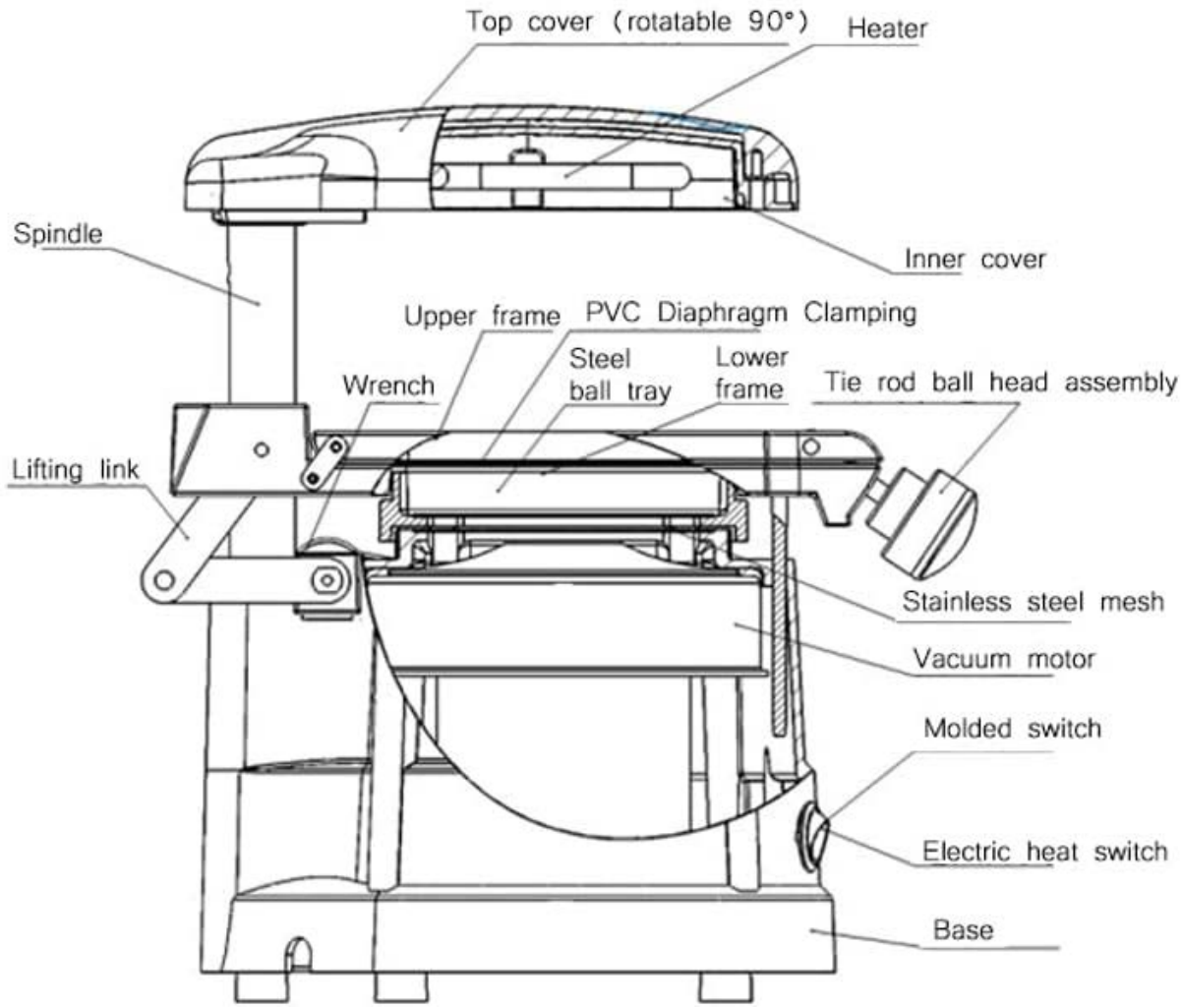

Figure 2: Labeled diagram of the vacuum forming machine's internal and external components.

Key components include:

- **Top Cover (Heater):** Contains the heating element, rotatable 90 degrees for material placement.
- **Spindle:** Supports the upper frame and allows vertical movement.
- **Upper Frame:** Holds the thermoplastic sheet.
- **Lower Frame:** Supports the material tray.
- **PVC Diaphragm Clamping:** Mechanism to secure the thermoplastic sheet.
- **Steel Ball Tray:** Holds the material to be formed (e.g., dental model).
- **Vacuum Motor:** Located below the perforated stage, provides suction.
- **Molded Switch (MODEL):** Activates the vacuum motor.
- **Electric Heat Switch (HEAT):** Activates the heating element.

- **Lifting Link & Wrench:** For adjusting and operating the clamping and forming mechanism.

Figure 3: Control panel showing the 'MODEL' (vacuum) and 'HEAT' (heating) switches.

4. Setup Instructions

1. **Unpacking:** Carefully remove the vacuum forming machine from its packaging. Inspect for any damage during transit.
2. **Placement:** Place the machine on a stable, level, and heat-resistant surface. Ensure there is sufficient space around the machine for ventilation and operation.
3. **Power Connection:** Connect the power cord to the machine and then to a grounded 220V power outlet. Verify that the power supply matches the machine's requirements.
4. **Initial Inspection:** Before first use, ensure all moving parts operate smoothly and that the clamping mechanism is secure.


MODEL
HEAT

Figure 4: The vacuum forming machine with its power cord, ready for connection.

5. Operating Instructions

Follow these steps for effective vacuum forming:

1. **Prepare the Model:** Place the object or model to be formed (e.g., dental impression) onto the steel ball tray. Ensure it is centered and stable.
2. **Insert Thermoplastic Sheet:** Lift the upper frame and insert a thermoplastic sheet into the PVC diaphragm clamping mechanism. Securely clamp the sheet.
3. **Position for Heating:** Rotate the top cover (heater) over the thermoplastic sheet.
4. **Activate Heating:** Turn on the **HEAT** switch. Allow the thermoplastic sheet to heat until it sags approximately 1-2 cm below the clamping frame. The heating time will vary depending on the material thickness and type.
5. **Initiate Vacuum Forming:** Once the sheet has softened sufficiently, quickly lower the upper frame with the softened sheet over the model. Simultaneously, turn on the **MODEL** (vacuum) switch. The vacuum motor will activate, drawing the softened sheet tightly around the model.
6. **Cooling:** Keep the vacuum active for approximately 15-20 seconds to allow the material to cool and set around the model.
7. **Release and Remove:** Turn off both the **HEAT** and **MODEL** switches. Lift the upper frame and carefully remove the formed thermoplastic from the machine.

Figure 5: Example of a dental model placed on the steel ball tray for vacuum forming.

6. Maintenance

- **Cleaning:** Regularly clean the exterior of the machine with a soft, dry cloth. Ensure the machine is unplugged before cleaning.
- **Heating Element:** Periodically inspect the heating element for any signs of damage or debris. Do not attempt to clean the heating element while it is hot.
- **Vacuum System:** Ensure the perforated stage and vacuum motor intake are free from obstructions to maintain optimal suction.
- **Moving Parts:** Lubricate moving parts, such as the spindle and lifting link, as needed with a suitable lubricant to ensure smooth operation.
- **Storage:** Store the machine in a dry, dust-free environment when not in use.

7. Troubleshooting

Problem	Possible Cause	Solution
Machine does not power on.	No power supply; loose connection; faulty power cord.	Check power outlet and connections. Ensure power cord is fully inserted.

Problem	Possible Cause	Solution
Heating element not working.	HEAT switch off; faulty heating element.	Ensure HEAT switch is on. If problem persists, contact support.
No vacuum suction.	MODEL switch off; vacuum motor obstructed; air leak.	Ensure MODEL switch is on. Check for obstructions in the vacuum area. Verify thermoplastic sheet is properly clamped.
Poorly formed results.	Insufficient heating time; incorrect material thickness; model not centered.	Increase heating time. Use appropriate thermoplastic sheet for the application. Ensure model is centered and stable.

8. Specifications

Model	JT-18
Brand	MLGB
Power (Wattage)	1000W
Voltage	220V
Material	Metal, Plastic
Item Weight	5.63 kg (12.38 lbs)
Package Dimensions	14.2 x 11.6 x 10.2 inches