TOAUTO TMF6000B-V3

TOAUTO 6KG Propane Melting Furnace Kit

Model: TMF6000B-V3 Instruction Manual

Introduction

This manual provides essential instructions for the safe and efficient operation of your TOAUTO TMF6000B-V3 6KG Propane Melting Furnace Kit. This furnace is designed for smelting various metals with melting points below 1300 °C / 2372 °F, including gold, silver, copper, and aluminum. Please read this manual thoroughly before initial use to ensure proper setup, operation, and maintenance.



Figure 1: TOAUTO TMF6000B-V3 Propane Melting Furnace in operation.

Safety Information

Failure to follow these safety guidelines may result in serious injury, property damage, or death.

- **High Temperatures:** The furnace operates at extremely high temperatures (up to 2372°F). Always wear appropriate personal protective equipment (PPE), including high-temperature gloves, face shield, and heat-resistant clothing.
- **Propane Gas:** Use propane in a well-ventilated outdoor area only. Ensure all gas connections are tight and leak-free before operation. Never operate near flammable materials.
- **Ventilation:** Adequate ventilation is crucial to prevent the buildup of hazardous fumes and gases.
- **Burner Backfire/Gas Smell:** If you experience backfire or a pungent gas smell, immediately shut off the propane supply and inspect the burner assembly. Refer to the Troubleshooting section.
- **Hot Surfaces:** The furnace body and all components will become extremely hot during and after operation. Do not touch hot surfaces without proper protection. Allow the furnace to cool completely before handling.
- **Material Handling:** Use the provided tongs to handle hot crucibles and molds. Ensure a stable surface for pouring molten metal.

- **Children and Pets:** Keep children and pets away from the operating furnace and hot materials.

Setup

1. Unboxing and Component Identification

Carefully unpack all components and verify against the following list:

- TMF6000B-V3 Propane Furnace
- Single Burner Set
- 6KG Crucible
- 113ML Graphite Ingot Mold
- 30 PSI Propane Regulator with PSI Gauge
- Tongs
- High-temperature Gloves
- Instruction Manual



Figure 2: Complete TOAUTO TMF6000B-V3 kit contents.

2. Burner Assembly

1. Before assembly, ensure the air outlet of the brass tube at the end of the burner is in a horizontal position. If not, use a wrench to adjust it. Incorrect alignment can lead to ignition issues, backfire, or gas smell.
2. Connect the burner to the air pressure valve, ensuring a tight seal.
3. Insert the assembled burner into the air inlet of the gas melting furnace and secure it with the included locking screw.

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Video 1: Detailed guide on assembling the burner and ensuring proper brass tube alignment.

3. Propane Connection

1. Connect the 30 PSI propane regulator to your propane gas tank. Ensure the connection is secure.
2. Initially, adjust the regulator valve to 10-15 PSI for preheating.



Figure 3: Propane regulator and burner inlet valve.

4. Furnace Preparation

1. Place the refractory brick (if applicable) at the bottom of the furnace.
2. Carefully place the 6KG crucible onto the refractory brick inside the furnace.



Figure 4: Internal ceramic cotton insulation of the furnace.

Operating Instructions

1. Lighting and Preheating

1. Ensure the burner's inlet valve is fully open.
2. Open the gas tank valve and adjust the propane regulator to 10-15 PSI.
3. Use an igniter or torch to light the furnace through the opening.
4. Allow the crucible to preheat for 3-5 minutes to dry out any moisture.

2. Melting Process

1. Once preheated, carefully add the metal to be melted into the crucible using the tongs.
2. Cover the furnace with its lid.
3. Adjust the propane regulator to 30 PSI to begin heating the furnace and melting the metal.

4. Monitor the melting process. Melting times vary: aluminum typically melts in about 10 minutes, while other metals like gold, silver, and copper may take 10-35 minutes depending on material and weight.



Figure 5: Furnace operating with molten metal.

3. Pouring and Cooling

1. Once the metal is completely molten, use the tongs to carefully remove the hot crucible from the furnace.
2. Preheat the graphite ingot mold with a welding torch for 1-2 minutes to prevent thermal shock and ensure a smooth pour.
3. Slowly and steadily pour the molten metal into the preheated graphite ingot mold.
4. To avoid metal oxidation, quickly place the newly formed metal ingots onto ice or a cooling surface.

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Video 2: Demonstration of furnace operation, including preheating, melting, and pouring molten metal.



Figure 6: Pouring molten metal into an ingot mold.

Maintenance

- **Regular Inspection:** Periodically inspect the ceramic cotton insulation for damage or wear. Replace if necessary to maintain heat retention.
- **Burner Check:** Ensure the burner components are clean and free from blockages. Check gas connections for any signs of wear or leaks.
- **Crucible Care:** Inspect the crucible for cracks or damage before each use. A damaged crucible can be dangerous.
- **Cleaning:** After the furnace has completely cooled, clean any metal residue or debris from the interior and exterior surfaces.

Troubleshooting

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Furnace not igniting	Brass tube air outlet misaligned; insufficient gas flow; igniter issue.	Check brass tube alignment (refer to Setup, Burner Assembly). Ensure propane tank valve is open and regulator is set correctly. Verify igniter functionality.
Backfire or pungent gas smell	Brass tube air outlet misaligned; loose gas connections.	Immediately shut off propane supply. Check brass tube alignment (refer to Setup, Burner Assembly). Tighten all gas connections. Do not operate if gas smell persists.
Inefficient heating or slow melting	Regulator PSI too low; damaged insulation; improper lid placement.	Ensure regulator is set to 30 PSI for melting. Inspect ceramic cotton insulation for damage. Ensure the lid is properly seated to minimize heat loss.

Specifications

- **Model Number:** TMF6000B-V3
- **Product Dimensions:** 11.81 x 11.02 x 13.58 inches
- **Item Weight:** 15.4 pounds
- **Maximum Melting Temperature:** Up to 1300 °C / 2372 °F
- **Crucible Capacity:** 6KG
- **Burner Power:** 250,000 BTU
- **Regulator:** 30 PSI Propane Regulator with PSI Gauge
- **Insulation:** 1.2 inches (30mm) Ceramic Cotton

Support

For technical assistance, troubleshooting beyond this manual, or inquiries regarding parts and accessories, please contact TOAUTO customer support:

- **Website:** Visit the TOAUTO Store on Amazon
- Refer to the contact information provided in your product packaging for direct support channels.

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