

Water-Cooled Medium Frequency Dental Casting Machine

User Manual

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Overview:

This machine is suitable for the orthodontic and restorative dental professions, and is used for precision casting of various dental alloys (cobalt-chromium alloys, nickel-chromium high-melting alloys, gold alloys, and various medium-melting alloys, etc.) for dental applications such as frameworks, clasps, crowns, bridges, etc.

Within a few tens of seconds, this machine can melt high, medium, and low-melting alloys to a boiling temperature, allowing the molten metal to have good fluidity. The machine provides a certain casting pressure and speed, ensuring accurate casting and producing dense structures with complex shapes and delicate, thin castings for both removable and fixed dental prostheses. The water-cooled induction coil and electronic components significantly improve work efficiency, with extremely fast melting speed and large capacity being its hallmarks. It is also simple to operate, not alloy-specific, and can melt both scrap metal and ingots, extending the machine's service life.

Technical Specifications

Power Supply Voltage: ~220V 50Hz, 110V 60Hz

Power: 3.5 KVA

Oscillation Frequency: 200 KHz

Motor Power: 0.37 KW

Motor Speed: ≥ 500 r/min

Melting Capacity: ≤ 100 g, 50g melts in about 1 minute

Cooling Method: Water-cooled

Dimensions: L 660 x W 560 x H 910 (mm)

Equipment Weight: 160 Kg

Operating Reparations

Connect the power cord to a circuit breaker or air switch rated no less than 30A. Ensure a secure ground connection, and use a copper wire no less than 2.5 square millimeters for the incoming power line. Prepare a bucket of water no less than 100 liters. Place the inlet and outlet water hoses into the bucket, ensuring the inlet hose is not touching the bottom to prevent debris from being drawn into the pump or clogging the inlet. Both outlet hoses should be suspended above the water surface, not submerged, to allow for easy observation of water flow.

From top to bottom on the control panel, there is a voltage meter, current meter, melt button, cast button, stop button, corresponding indicator lights, and a positioning light and adjustment knob.

Operation sequency:

1. The machine comes with 4 casting ring holders of varying sizes.
2. Once everything is prepared, turn on the power switch, and the water pump will start operating.
3. Observe the inlet and outlet hoses for proper water flow, and check that the power supply voltage does not exceed 235V.
4. Open the machine cover.
5. Select the appropriate holder and place it on the centrifugal arm.
6. Place the casting ring on the holder.
7. Loosen the clamping nut.
8. Adjust the balancing weight to achieve balance on the centrifugal arm as much as possible.
9. Tighten the clamping nut [note: always tighten the nut before casting to ensure smooth operation during centrifugal casting].
10. Place the crucible on the crucible stand.
11. Add an appropriate amount of metal alloy.
12. Position the crucible flush against the positioning screw so that the front of the centrifugal arm is parallel to the machine opening.
13. Close the machine cover, and the positioning light should illuminate.
14. Press the melt button (the induction coil will rise).
15. Rotate the adjustment knob while observing the current meter, aiming for a reading between 16-17A.
16. Watch the melting process through the observation window.
17. As soon as the metal is molten, press the cast button (the induction coil will lower, and the current meter will read zero).
18. The centrifugal arm will begin to rotate rapidly.
19. After 3 seconds, press the stop button.
20. Once the centrifugal arm stops rotating, open the cover and remove the casting ring.

Important Notes

1. Every time the machine is started, it is essential to observe the inlet and outlet water flow to ensure proper operation. When pressing any operation button, be sure to hold it down for 2 seconds before releasing. Monitor the water temperature in the bucket, and when it reaches around 50°C, replace the water. It is crucial to keep the water bucket clean and free of debris. In the winter, be mindful of operating the machine in a cold environment to prevent the water pump from freezing and becoming damaged.
2. Maintain cleanliness inside the casting chamber, and after each use, clean out any residual material inside. There is a waste opening in the bottom left corner of the chamber.
3. If the machine is used frequently, periodically blow out any accumulated dust inside, as regular maintenance is important. Excessive dust can significantly impact the performance of the electronic components.
4. The maximum melting capacity of this machine is 100 grams, with 50 grams

melting in approximately 1 minute.

5. Monitor voltage fluctuations. When pressing the melt button, the voltage drop should not exceed 8V, as a larger drop will slow down the melting process.

6. The machine's power supply is 220V, 50Hz/110V, 60Hz, with a power rating of 4kW.