

Electric Hand Held Melting Furnaces

The Romanoff Digi-Melt Automatic Hand Held Melting Furnace Series was designed to be a safe and easy to use electrical method for melting gold, silver and other non-ferrous metals for casting and ingot-pouring applications. It offers precise control of melting temperatures up to 2028°F (1120°C) through its user friendly, easily programmable controller with LED display. The insulated lid holds in heat and keeps oxygen out for a cleaner melt. Operates on 110 volt; 50/60Hz. or available in 220v.

Melting Capacities Electrical Specifications:

1kg model P/n 8100

3kg model P/n 77-042-M3D

Setting up the Furnace

1. Unpack the shipping box and check to make sure your Automatic Melting Furnace includes a crucible, a pair of crucible tongs, power cord and instructions manual.
2. Inspect the unit and accessories in case any damage has occurred during shipping. Make sure the inside of the heating chamber is free of any debris. If there is a piece of wood or Styrofoam between the control housing and heating chamber, remove it before operation.
Please note: We recommend that you keep the carton and packaging material to reuse in the event the furnace must be returned for repair or servicing.
3. If you haven't done so already, choose an appropriate working area for the furnace. Make sure the top of your working surface is composed of metal, ceramic, slate or any other surface that will not support a fire in case of a molten metal spill.
Warning! Allow at least 2" (50cm) of space between the furnace and any surrounding combustible surfaces of items. Heat emitted from the furnace requires at least this much open space to dissipate in order to avoid possible fire hazard.
Warning! Do not use this furnace in the same area with flammable or combustible materials as the furnace may ignite these materials.
Notice: The furnace should be used only in a well-ventilated area as some alloys release fumes that can create risks. Follow all local and federal regulations for proper ventilation procedures.
4. After setting up your furnace in a work area that meets the above safety criteria, check to be sure the front power switch is in the **OFF** position before plugging the furnace into a properly grounded outlet.

Warning! To avoid electrical shock, the furnace must always be used with a properly grounded outlet and with the correct voltage and electrical current handling-capacity.

Notice: In the event you need to replace the electrical system's fuse, always use the correctly rated fuse. For the 1kg model, use a 15-amp breaker and the 3-kilo model uses a 20-amp breaker..

Operational Safety

Your Melting Furnace is designed to provide safe and efficient operation. Due to the extremely high heat and molten metal involved in this process, a high degree of caution and care are critical to ensure the safe use. Please note the following precautions before you proceed with operation of this furnace.

Warning! Always use appropriate safety equipment, including safety glasses, appropriate heat-resistant gloves, a fireproof apron and leather-toed shoes (or equivalent) when using this furnace.

Molten metal can cause serious injury if not handled properly and carefully.

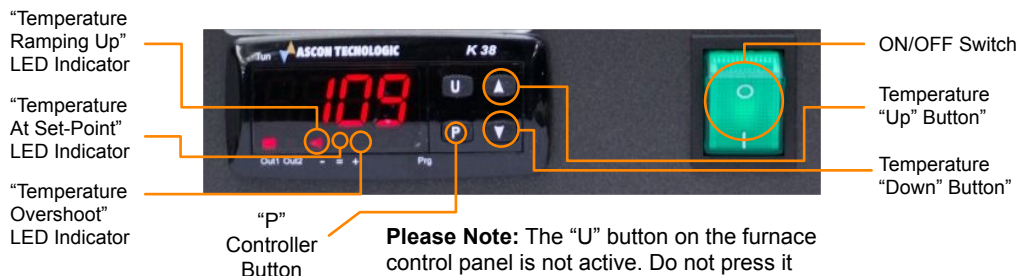
Warning! Keep hands, hair and clothing away from the melting chamber while it is hot. Do not let moisture drip into the molten metal – a violent reaction may occur. Do not touch the furnace while it is in use or until a sufficient cooling time has passed (2-3 hours after unit has been turned off). The furnace generates high temperatures that can cause severe burns or a fire.

Notice Inspect your crucible for cracks, wear and deterioration prior to every use. Due to high heat, some of the crucible material will naturally slough off over time and the walls and base will gradually become thinner. This may result in leaking which can cause element and thermocouple failure. See the back page of these instructions to order replacement crucibles.

Notice Do not set the furnace temperature high enough to grossly exceed the melting point of the metal you are loading. This could cause boiling and vaporization of the metal resulting in damaging contamination and failure of the element.

Operating the Furnace (Digital Version)

Before using your furnace, review the control panel descriptions below and become familiar with its operation.



Setting the Melt Temperature and Handling the Melt

1. Remove the crucible and clean the inside with a hard paper towel to remove any loose graphite or other debris. Close the lid and turn the furnace on. The letters **"tEst"** will appear on the LED display and the unit will perform a self-test. Once the test is complete, the current temperature of the heating chamber will appear.
2. Push the **"P"** button once to program the set-point temperature. The letters **"SP 1"** will appear. You can now adjust the set-point temperature to your desired temperature by using the **"UP"** and **"DOWN"** keys. Holding a key down for a few seconds allows you to change the temperature setting more rapidly. When the set-point temperature is correct, push the **"P"** button again to save it.
3. Once the temperature set-point is saved. The furnace will quickly begin to ramp up to that temperature* and the red LED **"ramping up"** arrow displays. When the set-point temperature is achieved, the square green LED will come on. The red LED **"overshoot"** arrow will appear next, indicating the furnace has gone slightly beyond the set-point. The LEDs will alternate **Off and On** as the furnace self-adjusts to the set-point.

How to operate

1. Using the tongs, grasp the crucible around the grooves in its upper carefully lower the crucible into the heating chamber and close the lid.
Warning! At this point, the heating chamber is extremely hot. Use caution and always wear heat-resistant gloves when performing any operation near the heating chamber. The temperature shown on the display will ramp slightly when you first add the crucible. It will return to your set-point temperature after a few minutes.
2. Beginning with small pieces, slowly add metal to the crucible; fill the crucible only to 1/4 - 1/3 of its capacity at first. Once that is melted add more metal until you have the amount needed for your casting.
Warning! Use caster's tweezers to handle the metal pieces. Do not drop larger, heavier pieces into the crucible as the shock could fracture it.
Please note: We recommend using separate crucibles for different metals to avoid cross-contamination.
3. When you have fully charged the crucible with metal and the temperature is slightly below set-point, stir the metal with an appropriate stirring rod (sold separately below). After the metal has reached casting temperature, open the lid, carefully remove the crucible with your tongs and pour quickly as the metal will immediately begin to cool. If casting multiple flasks, repeat as needed.

Warning! Always wear appropriate heat-resistant safety gloves (such as the Kevlar gloves P/n 78-091) whenever you are handling a hot crucible.
4. When you are finished melting, turn off the power switch, close the lid over the heating chamber and unplug the unit (to avoid accidental activation). Place the hot crucible in the inert environment (such as the crucible cooling jar sold below) to help slow graphite deterioration caused by exposure to oxygen. If you don't have an inert environment put the crucible inside the unit to cool.