

1kg & 3kg Tilt-Pour Electro-Melt Furnace





Tilt-Pour Electro-Melt Furnace by Pepetools
(1kg Version shown)

The Pepetools Tilt-Pour Electro-Melt Furnace lets you quickly and easily melt large quantities of metal and pour it into molds for casting. It is a great tool for recycling your precious metals and a perfect part of your casting setup. Two models are available, one accommodating 1kg of metal and the larger unit which can melt up to 3kg. This is more than could be melted by a torch and is simpler and more economical than a large gas furnace. It offers the small studio an opportunity to melt and recycle precious and nonferrous metals with ease and simplicity—no need to use tongs to try and remove a hot crucible. Just lift and pour like a jug. Simpler, easier, and safer.

The furnace is designed to be easy and safe to use. But as with any furnace, by its very nature, it needs to get hot. So, a strict common-sense approach to safety is vital to ensure safe and reliable operation. Pepetools accepts no liability for damage or injury caused by improper use. There are two main considerations for safe use. First is the placement of the unit itself. The second is the use of correct PPE (personal protection equipment) while using it.

Setup

Placement of the furnace.

The furnace should be placed on a stable, solid worktop. A clear space of at least 50cm must be kept all around the furnace. Keep flammable liquids or any combustible materials away from the furnace. If you are going to be pouring the molten metal into an Ingot mold, or a casting. This must be placed on a fireproof furnace like a metal tray. This is to catch any overspill or drips, which will be extremely hot. All pouring should be done over this metal tray. Good ventilation is also essential. If you have fume extraction, use it throughout the operation. If not, use the furnace in a well-ventilated area- or even outdoors. In all cases, children and pets should be kept away, and others working in the area should be made aware that the unit is in use - especially when pouring. (The last thing you want is anyone bumping into you, mid-pour!). Have mold next to the furnace. Do not carry it around, with molten metal in it. Check before use that you will be able to pour it safely, with the power cord attached and with the added weight of the metal. The unit is designed for right-handed use. Have the handle to your right and place your tray with the mold on the unit's left. Note that the larger 3kg unit when full can be quite heavy.

PPE equipment.

Safety glasses are always a minimum, but to avoid splashes of hot material, a full-face shield is highly recommended. Likewise, an apron should be worn, but this must be fireproof, e.g., leather. To protect the hands especially when adding metal into the crucible gloves should be worn, again fireproof. An important safety consideration often overlooked is footwear. As mentioned above, pouring should always be done over a metal tray. But in the event of accidental spillage of hot material, onto the floor suitable footwear is essential - Leather work boots as a minimum. It is also good practice in any workshop to have appropriate fire safety equipment.

Pre checks.

WHEN IT IS COLD and Unplugged. Before using the unit, remove the crucible and check for any damage or cracks. The crucible is a consumable part and will slowly degrade with use, which is natural. You must check it carefully before each use. If you find it severely damaged, broken, or cracked, then it must be replaced before continuing. See Pepetools.com for replacement crucibles.

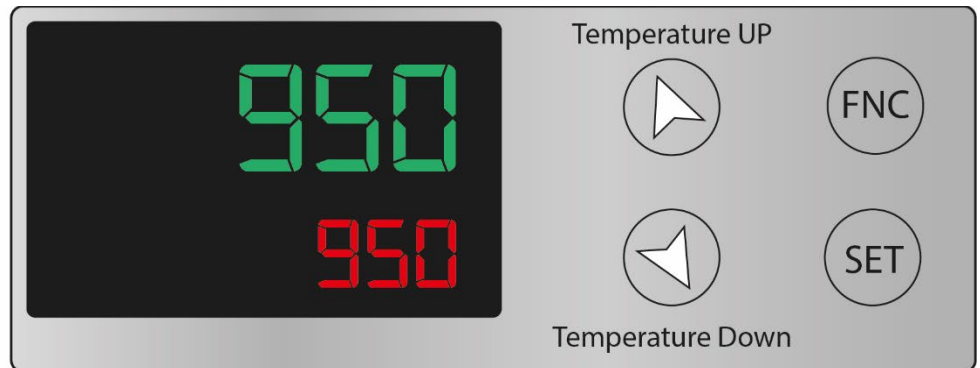
Top tip: - to avoid cross-contamination, it is a great idea to keep different crucibles for each metal e.g., one for silver, and one for gold.

Operation

After checking, replace the crucible and lid. Plug the unit in and switch it on with the green rocker switch situated next to the handle. The display should illuminate, as shown.

**Current Temperature
GREEN**

**Target Temperature.
RED**



The LED display shows two temperatures. The large number on top is the current temperature of the crucible shown in GREEN. Below it in red is the 'setpoint' target temperature.

Note: - The furnace will automatically switch units from °F Fahrenheit to °C Celsius (centigrade) depending on the voltage setting. If using 110v in the USA, the unit will automatically display the temperatures in °F Fahrenheit. If set to 220v for the UK, the unit will automatically display the temperatures in °C (centigrade / Celsius). In either case, the temperatures are displayed in green and red as above.

Use the up and down arrows, to set the target temperature, in red. Pressing up or down once will increase or decrease the value by one degree. Holding the button down will cause the value to increase rapidly up or down.

As a guide, the target temperature should be approximately 100°F or 38°C above the melting point of the metal.

Tip: - Excessively overheating the metals can cause boiling and affect the properties of your alloy, it can also lead to porosity and holes in your castings. Over-excessive heat can also greatly reduce the lifespan of your furnace and crucible. So set the target temperature according to the metal being used.

Operation

Here we have provided a handy chart, which you may wish to print out, showing the melting temperature and the suggested target temperature, in both °F and °C. This chart is a guide only and different alloys may vary slightly. The melting point is for your reference, the important thing is the TARGET temperature. As above, this is typically 100°F or 38°C above the melting point of the metal. It is this target temperature that you should set on the furnace, using °F or °C according to your voltage and region.

Metal	Target Temp.		Melting point	
	Fahrenheit	Celsius	Fahrenheit	Celsius
Pewter	540 °F	264 °C	440 °F	226 °C
Tin	550 °F	270 °C	450 °F	232 °C
Zinc	886 °F	456 °C	786 °F	418 °C
Aluminum	1,320 °F	698 °C	1,220 °F	660 °C
14K Gold	1,715 °F	917 °C	1,615 °F	879 °C
Sterling Silver	1,740 °F	931 °C	1,640 °F	893 °C
9ct Gold	1,752 °F	938 °C	1,652 °F	900 °C
18K Gold	1,800 °F	964 °C	1,700 °F	926 °C
Brass	1,824 °F	978 °C	1,724 °F	940 °C
Fine Silver	1,860 °F	998 °C	1,760 °F	960 °C
Bronze	1,925 °F	1,034 °C	1,825 °F	996 °C
Gold (Pure)	2,048 °F	1,102 °C	1,948 °F	1,064 °C
Copper	2,083 °F	1,122 °C	1,983 °F	1,084 °C
Nickel	2,130 °F	1,148 °C	2,030 °F	1,110 °C
Platinum	3,321 °F	1,809 °C	3,221 °F	1,771 °C

The unit will now start to heat up quickly. You will note the green temperature increasing. Until it reaches the target temperature. Once reached the furnace will switch the heater on and off to maintain the target temperature. Hence you may see the current temperature fluctuate slightly above or below the target temperature as the furnace adjusts accordingly. E.g., when removing the lid and adding cold metal, the temperature may drop a little.

Filling

Filling the crucible

As it starts to heat up, begin filling the crucible with your metal (*always leave the crucible in the furnace*). To begin, only fill one-third of the crucible and allow it to melt first before slowly adding more. Use long tongs to place metal into the crucible and ALWAYS wear fireproof gloves. Replace the lid immediately to conserve heat and speed up the melting.



Important: - do not drop large heavy chunks of metal directly into the crucible, this could potentially crack the crucible, resulting in irreparable damage. It could also create splashes of molten metal. Place larger pieces in gently and slowly with the tongs.

Top tip: - smaller pieces will melt faster than large solid lumps. So, cut up your metal into small pieces. You also need to ensure that the pieces will fit within the diameter of the crucible.

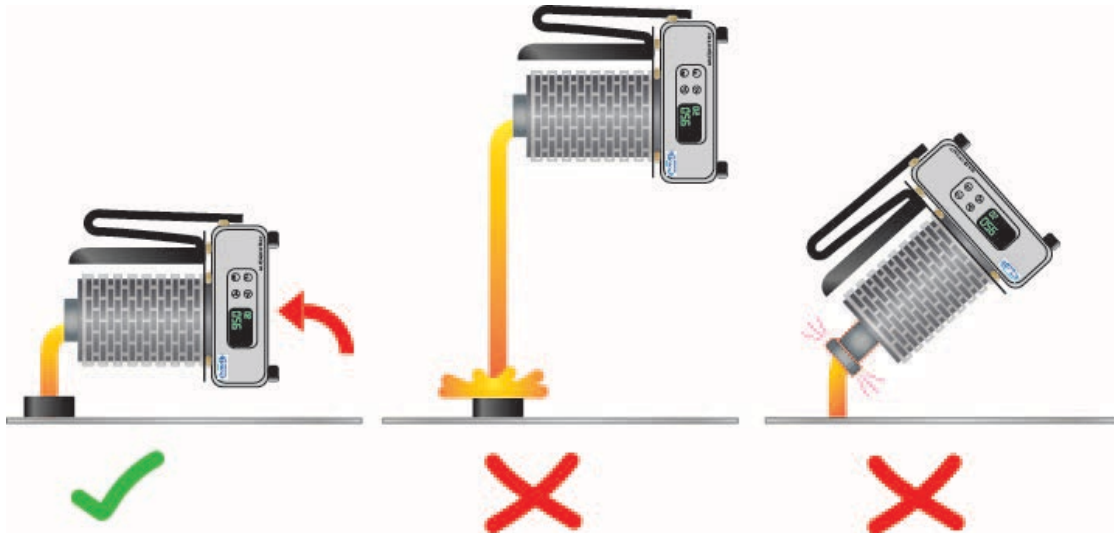
The metal must be dry. Do not place wet metal, or liquid into a hot crucible.

If melting silver, adding a small sprinkle of powdered borax, may help the metal melt. But as above, do not pour liquid flux into a heated furnace. When you have added all your metal, replace the lid, and wait for the furnace to reach the desired temperature as indicated on the front panel (large green number). Once the target temperature is reached, the unit will switch the heater on and off to maintain the target temperature. Whilst wearing gloves, stir the molten metal using a graphite rod, to mix the alloy and ensure even heating.

Pouring

Pouring.

Ensure the casting area is safe, and that your ingot mold, is on a metal tray adjacent to the furnace. Keep the unit powered, Remove the lid, hold the handle, and tilt the unit, to pour the metal into the mold. Tilt just a little and pour slowly, especially when full. Keep the lip of the crucible as close to the mold as possible.



Do not pour from a great height as this could splash and reduce the temperature of the metal going into the mold, resulting in poor casting.

Do not over-tilt the furnace too much beyond the horizontal. Tilting it upside down or at an acute angle could result in the crucible falling out. Just above the horizontal will be sufficient to pour from the crucible.

After pouring, place the furnace back down and replace the lid (it is still switched on). Continue to add more metal and repeat as needed.

When finished.

Once complete you should empty the crucible. Do not leave the crucible full, as this will solidify, and be difficult to heat next time and may damage the crucible if it expands. Pour any remaining metal into an ingot mold. Remember not to over-tilt the furnace.

Tip: - Cast small bars. Ensure you use an ingot mold whereby the ingots will be small enough to fit in the crucible for future use. Casting a large single bar will only create difficulty later as you will have to saw it down to fit in the crucible. (Pic small 1" cast bars, made with a graphite ingot mold)



Top tip. Pouring molten metal into a steel bucket filled with water will produce shot/grain, ideal for use in the future.

Recycling

Once empty, replace the lid, turn off the unit via the green switch, and disconnect at the wall outlet. Keep ventilation running and again remind others around you that it is still hot. If you wish to swap the crucible for the next job, allow it to fully cool first, in the furnace, with the lid on.

Do not remove the crucible whilst it is hot, as this will prematurely degrade in the oxygen of the air. Likewise, you should not place a cold crucible into a hot furnace as the shock could cause it to crack. The crucible should always start cold in the furnace and end cold in the furnace.

Allow a couple of hours for the unit to fully cool. This will vary upon the initial temperature and the ambient temperature of the room. Maintain ventilation and observe the same safety precautions until fully cooled. Note that once the exterior is cool the inside of the lid and the crucible may still be very hot, for some time. Do not simply leave the furnace unattended even when unplugged. Continue to check on it.

Recycling scrap: -

The furnace is ideal for recycling scrap silver and gold jewelry into new useable bars. With the use of the Pepetools Ultra rolling mill, cast ingots can also be turned into sheet and wire. Here are some important tips for recycling.

Ensure your metal is one type. Check hallmarks, and acid test if needed. Avoid contamination and ensure all the metal is of the same type and karat.

Remove any stones, gems, glass, and any non-metal parts. Be aware of steel springs inside lobster catches, bolt rings, cufflink bars, etc. Check all items with a strong magnet. Break them open and remove the springs.

As mentioned above it may help to cut up scrap items into small pieces, which are easier to load into the crucible, and will melt quicker. Use a hammer to flatten hollow items. If in doubt, check if items will fit whilst the crucible is cold.

Casting grain is pre-prepared grain available from your jewelry supplier. It is designed to melt easily. Adding new casing grain to your scrap will help it melt and mix properly.

Top tip: - items with large amounts of solder, such as long chains, can reduce the final percentage of your alloy a little. For example, if melting a lot of scrap sterling silver chains, it is a great idea to add a little 999 pure silver casting grain. This will help to keep your final silver content above the 92.5% sterling mark. Essential if you want to have your items assessed and hallmarked later. Likewise with gold adding a little higher karat gold to your scrap will help maintain the karat and counteract any solder or other impurities.



Super top tip: - Using Pewter

If this is your first time casting or using a furnace, and you are a little nervous about it. You may like to experiment with some pewter. It melts at a very low temperature, way below that of silver and gold, so is an easy and inexpensive introduction to melting and casting. It will allow you to familiarize yourself with the furnace and its safe operation, before progressing to more valuable materials and higher temperatures.

Using crucible tongs: -

The Pepetools unit is designed to be poured like a jug. The crucible has no groove around the rim. It is not designed to be used with tongs. It should only be removed when cold, with the use of safety gloves.

If you prefer to lift out the crucible with tongs and pour directly from it. It is recommended to purchase a special crucible intended for tongs, which will have a small groove around the rim. Check the measurements against the one supplied before purchase.



Error codes: -

In the case of a fault being detected an error code will be displayed. This will usually mean that a repair is necessary. Turn off and disconnect the unit. And contact the supplier for further advice.

Contacts

Whatever social media platform you use, Pepetools is right there. Follow us for the latest updates, news, and information on all your favorite Pepetools products. So, check us out and see what's new. Alternatively, you can call us, or simply write. However you get in touch, we look forward to hearing from you.

Kind regards, Pepetools USA.



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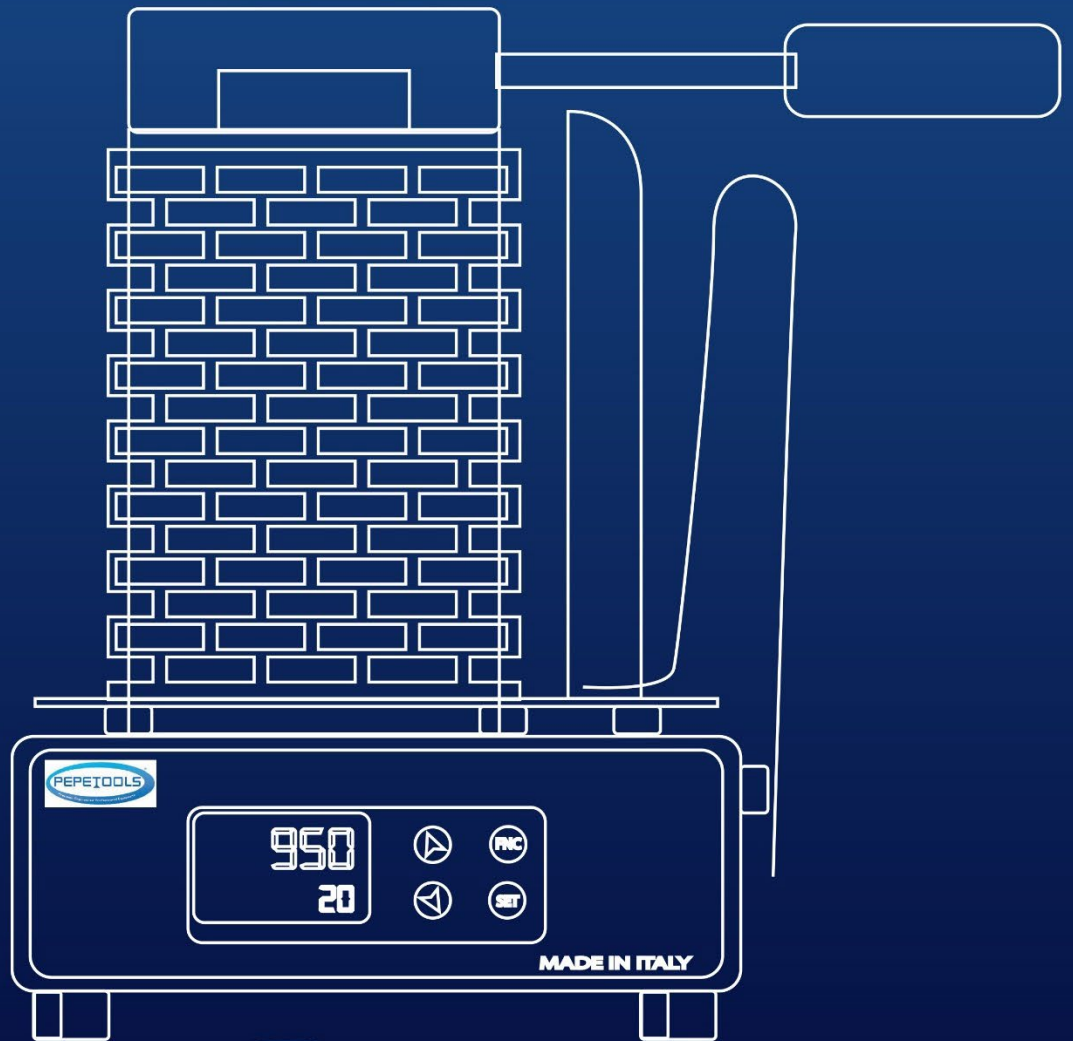
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