

DENTAMATIC 3000



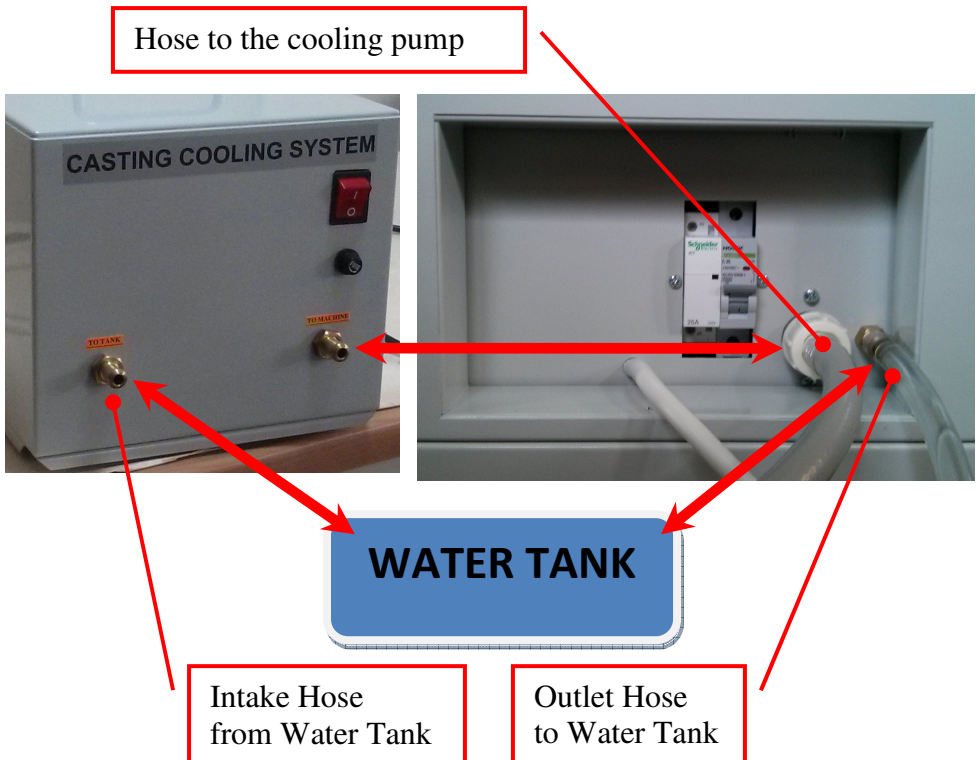
Induction Casting Machine

I. Features

- Max. melting temperature – 2,200°
- Time for melting Ni alloys – 30 gr for 50 sec.
- Time for melting platinum – 30 gr for 45 sec.
- Min weight of alloy (monoblock) – 10gr
- Max weight of alloy (monoblock) or min 10gr.
– total: 60gr
- High-frequency generator 60kHz
- Electrical Power ~3,000÷3,300W single phase
voltage 220V/50÷60Hz
- Centrifuge speed 500 rev/min
- Lift - hand lifting, automatic taking down
- Digital display for percentage of power
- Control – microprocessor
- Automatic tests and protection
- Cooling – water type
- Weight – approx. 48 kg.
- Dimensions – 500/500/440mm

II. Assembly Directions

1. Carefully unpack the casting machine.
2. Open the top lid and remove all parts – crucible, holders and other accessories.
3. Place the machine on a secure leveled working surface.
4. Mount the cooling pump as shown below:

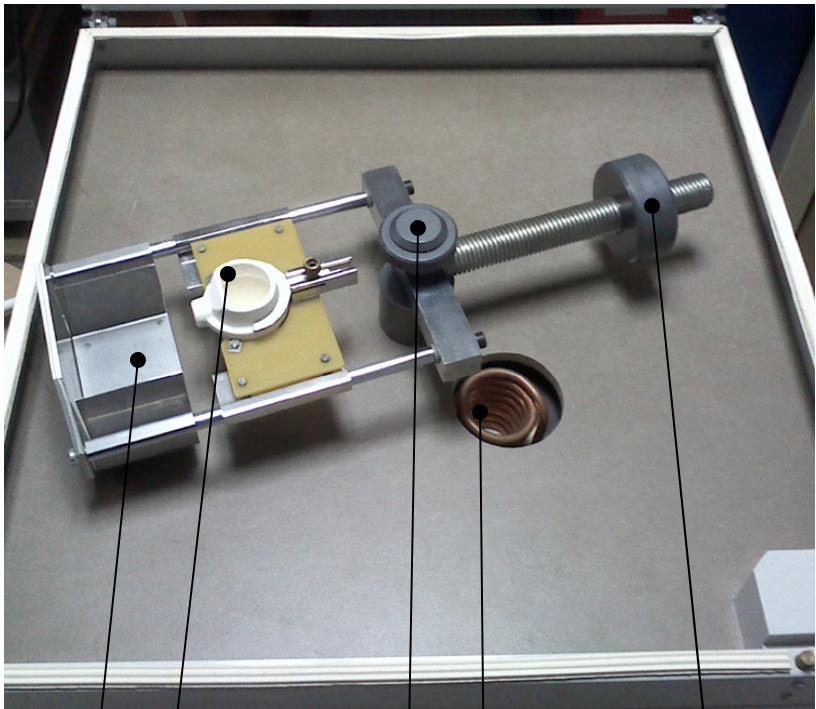


Please note that the inlet/outlet of the pump can be with reversed positions. Please follow the labels!

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5. Fill the water tank with water and connect the hoses between the pump, water tank, and the casting machine.
6. Plug the machine power cord into an electrical outlet, preferably on a separate circuit breaker and without using an extension cord.
7. First turn the machine on, next turn on the cooling pump and check if the NO WATER indicator turns off.
8. The casting machine is ready.

Centrifuge



Holder

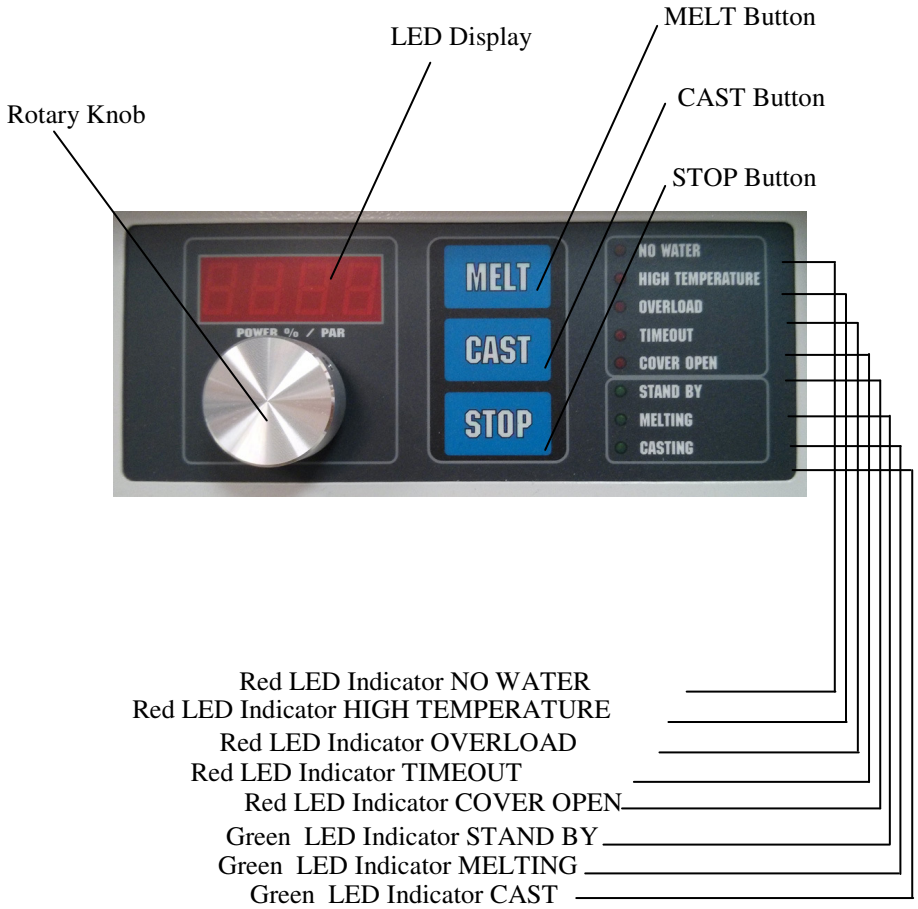
Crucible

Nut

Inductor

Balance
Weight

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III. Operation manual

1. Command and Indicator Controls

1.1 LED Display – It has four digits indicating:

- % of the power set by the operator (30÷100%)
- % of the power during melting
- text messages – STBY, MELT, and CAST

1.2 LED indication – The eight LEDs, arranged in a column on the right side of the front panel indicating (from top to bottom):

- **NO WATER (Red):** No water has been detected in the system. Possible causes: the cooling block has not been turned on, low water pressure, in case the casting machine is connected to the water mains
- **HIGH TEMPERATURE (Red):** The power module temperature sensor has been activated. The casting machine has overheated as a result of continuous operation.
- **OVERLOAD (Red):** The current in the power module has exceeded acceptable levels. Possible damage or an attempt to melt excessive (big or small) amount of metal.
- **TIMEOUT (Red):** The metal did not melt for 5 minutes. Power % was set too low or the amount of metal is too big or too small.
- **COVER OPEN (Red):** The lid is open.
- **STAND BY (Green):** Stand-by mode.

- MELTING (Green): Melting process.
- CASTING (Green): Casting process.

The red LEDs (except for COVER OPEN) indicate alarm conditions. In those cases, stop the machine and correct the problem immediately. Press the STOP button to cancel an alarm.

COVER OPEN alarm will stop the casting process.

The green LEDs indicate the modes of operation of the machine.

1.3 MELT button - It serves to start the melting process. It can be activated only from STBY mode. Prior to starting melting process, check:

- if the pot is correctly positioned
- the amount of metal in the pot
- the coupling
- if the centrifuge mechanism has been balanced
- the % of the set power

1.4 CAST button - It serves to start the casting process. It stops the melting process and starts the centrifuge. It can be activated only from MELT mode. Prior to starting casting process, check if the metal is molten.



Casting is performed, only when the lid is closed!

1.5 STOP button - It stops the melting and casting processes. It is also used to cancel the alarms. During **STBY** mode, if it is pressed for two seconds, it will release the inductor. When pressed during the melting and casting processes, the machine turns into **STBY** mode.

1.6 Rotary knob - It serves to set the power percentage. It is operated in the following manner: Press the **Rotary knob** (it also function as a button). The digital display indicates the % of the set power. If not previously set it will default to 30 or show previously set value. Turn the **Rotary knob** to the right to increase or to the left to decrease the value. Press the knob to save the value and go to **STBY** mode again.

The **Rotary knob** also controls the centrifugal acceleration. To set the speed during **STBY** mode press and hold the knob for 2 seconds. Initially the power percentage is shown and then you can set the acceleration speed. The three speed options are:

- S1 – Slow acceleration
- S2 – Medium acceleration
- S3 – Fastest acceleration

To set the speed and go back to **STBY** mode press the **Rotary knob**.

2. User Menu.

To access user menu, first turn off the machine. Press and hold the rotary knob and then turn on the machine, while holding the knob. User menu will appear on the digital display. Menu options can be changed by rotating the knob and selected by pressing the knob.

Menu options:

“**SErn**” – Serial number of the machine;

“**CYCL**” – Counter of the operation cycles done on the machine;

“**Firn**” – Firmware version;

“**cAti**” – Casting time. Default 120 seconds;

“**d00r**” – Default No. If this parameter is set to “No”, melting can be done, even the lid is opened. If it is set to “Yes”, melting is performed, only when lid is closed. If the lid is opened during melting, process will stop until the lid is closed.

3. Operation Steps



Store the casting machine at temperatures between 1°C and 50°C!



Operate the casting machine only when temperature is between 10°C and 40°C!

When turning the machine on for the first time, check:

- If the cooling block is correctly connected – inlet, outlet, and if there is sufficient amount of water (if there is).
- If you connect the machine to the water mains, check the inlet and the outlet. **Please do not feed water at full pressure of the water supply system. Minimum flow rate is needed.**
- The water capacity is sufficient when the NO WATER LED is off. The water flows in the apparatus only when it is turned on due to the electromagnetic valve installed at the inlet. It turns on 3 seconds after the machine is turned on.

- The electric power needs to be 220V/50Hz to ensure normal operation. To avoid circuit overload it is recommended to use an outlet with its own circuit protection and avoid the use of extension cords.



When using a crucible for the first time or after longer period of inactivity, it must be dried in burnout furnace at min.900°C for 5 minutes.

Step 1 – First put metal in the crucible and the flask on its place. Loosen the nut and level the centrifuge. Then tighten the nut.

Step 2 – Put the flask into burnout furnace to be heated to the required temperature.

Step 3 - Turn on the casting machine using the main power switch. The LED Display will show STBY for stand-by mode when the lid is closed or OPEN when the lid is opened.

Step 4 - Turn on the cooling (if using separate cooling).

Step 5 - Select required power percentage as already described above. Most metals usually require 100%

power, but for some special metals like gold a lower % can be used.

Step 6 - Place the metal in the crucible. Then place both of them in the inductor and the coupling in the corresponding place.

Step 7 – Put the heated flask into its bed.

Step 8 - Lift the inductor by hand. The casting machine holds it by electromagnet.



If there is need to release the inductor, before proceeding with the melting/casting, press and hold STOP button for two seconds!

Step 9 - Start the melting process by pressing the MELT button. The LED Display will show the power which will gradually increase until reaching the preset level. Close the lid. Observe the metal through the frosted glass.

Step 10 – While the metal is molten start the casting process by pressing the CAST button. The centrifuge will spin for about 2 minutes and then stop. This will complete the process and return the machine to STBY mode ready to be used again.



Press CAST only when the lid is closed!

The centrifuge operates only if the lid is closed. During CAST and 20 seconds thereafter, the lid will remain locked using an electromagnetic lock. Do not try to open the lid during CAST. Wait until the centrifuge stops and the lid is unlocked.

Step 11 – If needed cancel the melting or casting processes at any time by pressing the STOP button. That will place the machine to STBY mode and you can start the process again. Release the inductor with the STOP button.



*Switch off the cooling pump, before
switching off the casting machine!*
**!!! NEVER LEAVE THE COOLING
PUMP SWITCHED ON !!!**

We wish you pleasant and successful work!

TOKMET

