

G A R G

ELECTROHEAT

Induction Melting Machine

20 Kg (Gold 24 Kt)
With Tilting Mechanism

Owner's Manual

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Note of Thanks

We take the opportunity to thank you for vesting your interest in our product. We strongly recommend that you study carefully the operating instructions before attempting to operate the unit. We also recommend noting and displaying the precautions where the machine is installed.

Warning : Please do not attempt to open the machine when it is running. It may be extremely hazardous, as very high voltage exists inside the machine. Trained professionals only should open this machine.



Machine Specifications

Voltage	:	415 Volts / 3 Phase
Current	:	20 A (Max.) Per Phase
Power	:	15 KW (Approx.)
Capacity	:	20 Kg. (Gold 24 Kt)
Max. Temp.	:	1200 ⁰ C
Frequency	:	Medium Frequency
Crucible	:	Graphite 20 Kg Gold.
Time to first Melt	:	10 - 15 Minutes (Approx.)
Water Circulation	:	8 Liters per Minute (Min.)
Water Temperature	:	20 ⁰ C - 45 ⁰ C (Max.)
Weight	:	250 Kg. (Approx)
Dimensions (Gen.)	:	24" X 24" X 30" (WXDXH)
Tilt Head	:	14" X 24" X 72"

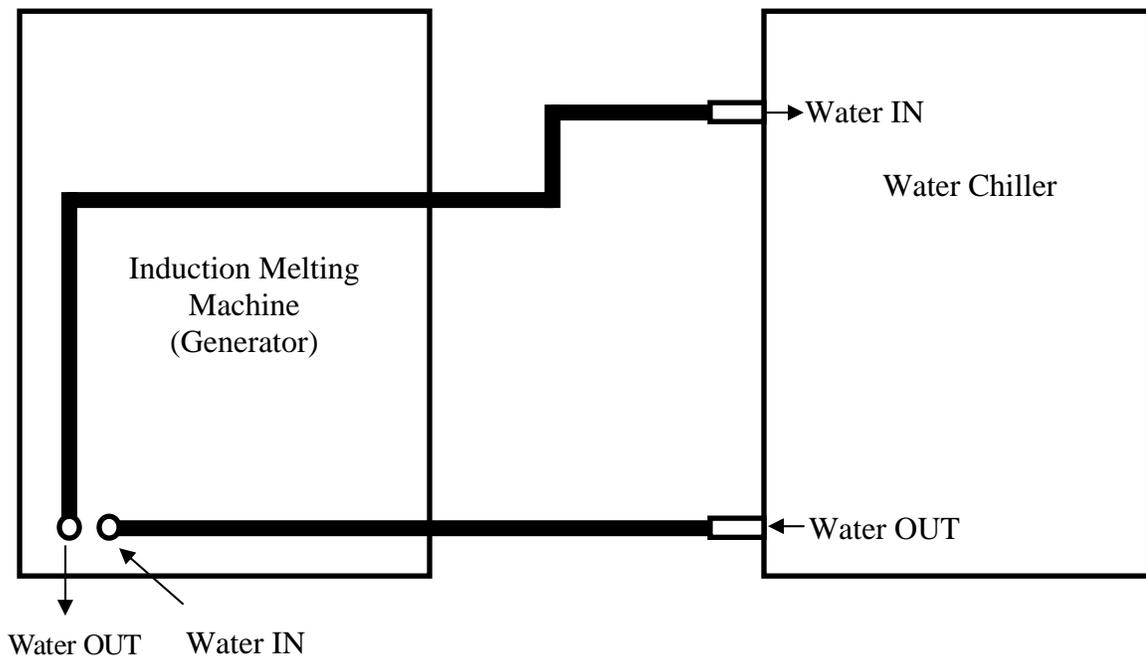
Machine Settings

Please follow the steps as below to set up the machine

- Place the machine in airy place (if possible) at least 6" from the wall.
- Make the water connections as indicated at the backside of the Generator.
- There should be provision for 3 Phase 4 Pole tripper output for machine and 3 Phase output for Chiller (if using).
- Always check for water temperature. If it goes above 45°C stop the machine and wait for temperature to go down.
- **If the electricity fails in the middle of the operations or for any other reason machine stops when the crucible is hot please take out the hot crucible and place any cold crucible in place.**

IMPORTANT : PLEASE DO NOT USE HARD WATER

Water connection Diagram :





Water Cooled Cable Connection

- 1.) Please connect ½ inches hose pipe with chiller and machine. (Water Out of Chiller connected to Water In of Machine and Water out of machine connected to water In of Chiller)
- 2.) Please set the chiller temperature to 24 deg so that there is no sweating inside the machine.
- 3.) Place Water Cooled Cable Connections as shown in Picture. Please place rubber sleeve on them as there is high voltage on them.
- 4.) Please ensure that the chain is mounted on Sprocket wheels, and weight is sufficient to keep them straight.
- 5.) Try the handle rotation and mark the movement of tilt head.
- 6.) Whenever you place the crucible on it, please fasten it by sliding the support.
- 7.) Once the water connection is done, please start the water flow and check if there is any water leakage. If there is leakage please tighten the screws to ensure no leakage.
- 8.) Connect the sensor and micro switch connectors. (Yellow cable is sensor and red/black pair is micro switch connectors from the tilt head to Generator)



Please see the position and connection of yellow sensor connector



Please see the position of white Micro Switch connector



Securing Crucible by sliding support

Operating the Machine

- First set up the machine as discussed above.
- Turn ON the POWER. A fan will start at the backside.
- Turn ON the 3 phase Tripper and tripper on the left side of machine. The red POWER OFF indicator will glow and red Buzzer of "WATER FAIL" will also glow along with "NO CRUCIBLE" Indicator if crucible is not placed. The temperature controller will boot and will display room temperature in some moments.
- Turn ON the Chiller and Water Pump. The red Buzzer of "WATER FAIL" should put off.
- Confirm that the crucible is in the place. The machine will not start without crucible. When you place the crucible "NO CRUCIBLE" Indicator will turn off.
- Set the required temperature as detailed in temperature controller's manual and marked.
- Press "POWER ON" green push button to start the machine.
- The ampere meter will display the current taken by machine and temperature controller will start showing the rise in the temperature on the display.
- The machine reaches 1050⁰C within 10 - 15 Minutes (Approx).
- When the melting is done, You can pour thr metal by turning the wheel.
- You must bring the graining tank below the tilt head before turning the wheel. The graining tank must be prepared before attempting to make grains.
- For next melting place the metal in crucible and press green "POWER ON" push button.
- When the work is done and red push button is pressed, keep the water running until temperature goes below 100⁰C.
- When machine sensor shows 100⁰C you may turn off the water and the tripper of the machine.

Troubleshooting

Please note that a trained electrician should open the machine. Please disconnect the machine from Power before opening. Always discharge the capacitors first and then proceed for repairing.

1. Machine does not start no display on temperature controller and no LED indication.
 - * Wire from tripper is disconnected.
 - * Wire from mains connector is open or loose.
 - * Check the three-pin plug for wire connections.
 - * Check the mains chord continuity.
2. Machine stops in the mid of melting and water fail LED glows.
 - * Check the output of the water for proper pressure.
 - * Check the water line for clogging.
 - * If everything is fine set the screw on water pressure switch and adjust for that pressure.
3. Machine starts, current builds and then machine trips.
 - * Check that crucible is in place.
 - * If it is in place check that it is not very thin if so please replace by a new one.
 - * Reduce the power by power-adjustment knob and restart.
 - * if the problem persists again reduce the power and restart.
4. Machine Turns ON but current does not built, Temperature controller shows some odd display.
 - * Sensor is open. Replace it.

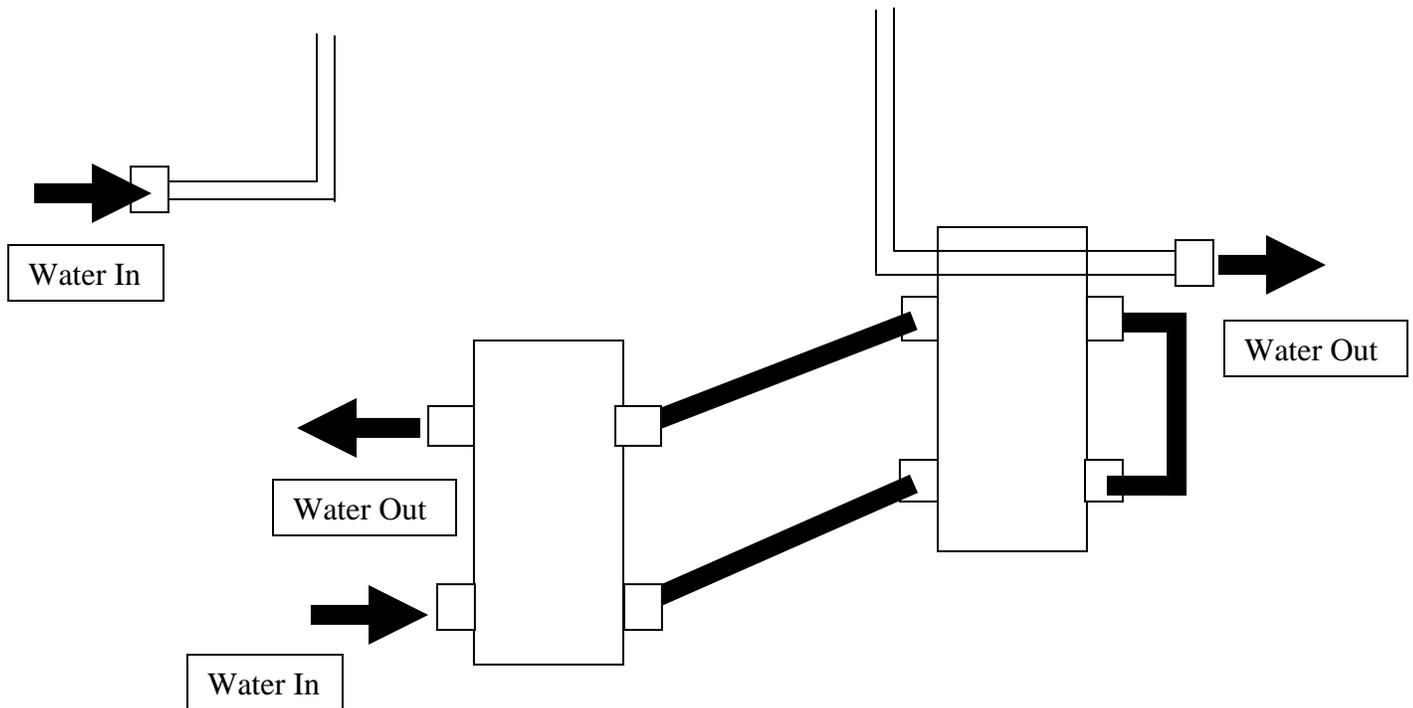
5. Machine Turns ON but current does not built, Temperature controller shows Room Temperature.

* Fuse is open. Replace it.

6. Water does not come out of the machine or the water flow is very slow or the water out temperature is very high.

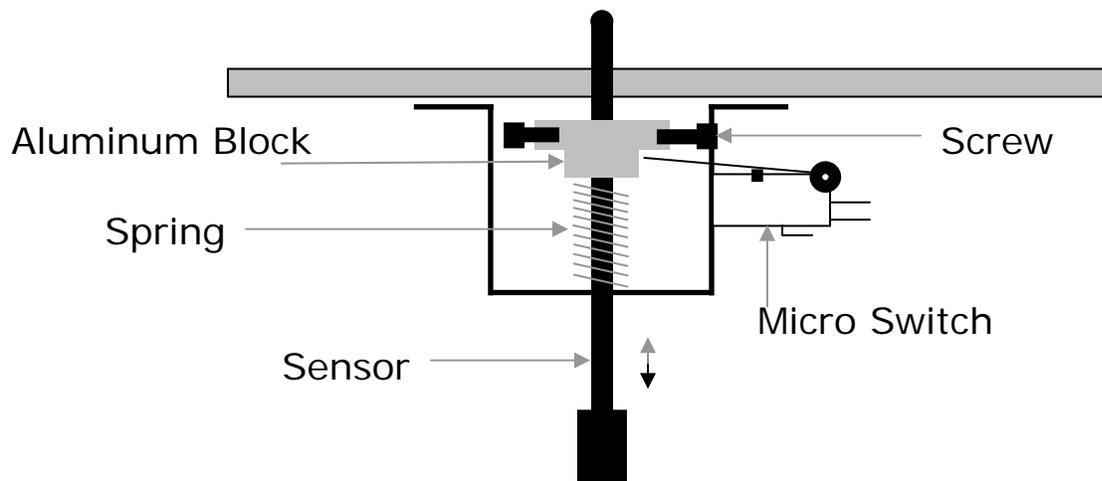
* Maybe the water circulation path is not clear. Try and clear the water tubes. You may use air pressure to clear the water line.

7. For any other reason please let your maintenance person open the machine and run it and note the status of LEDs on the PCB and contact us at the address and telephone nos. provided.



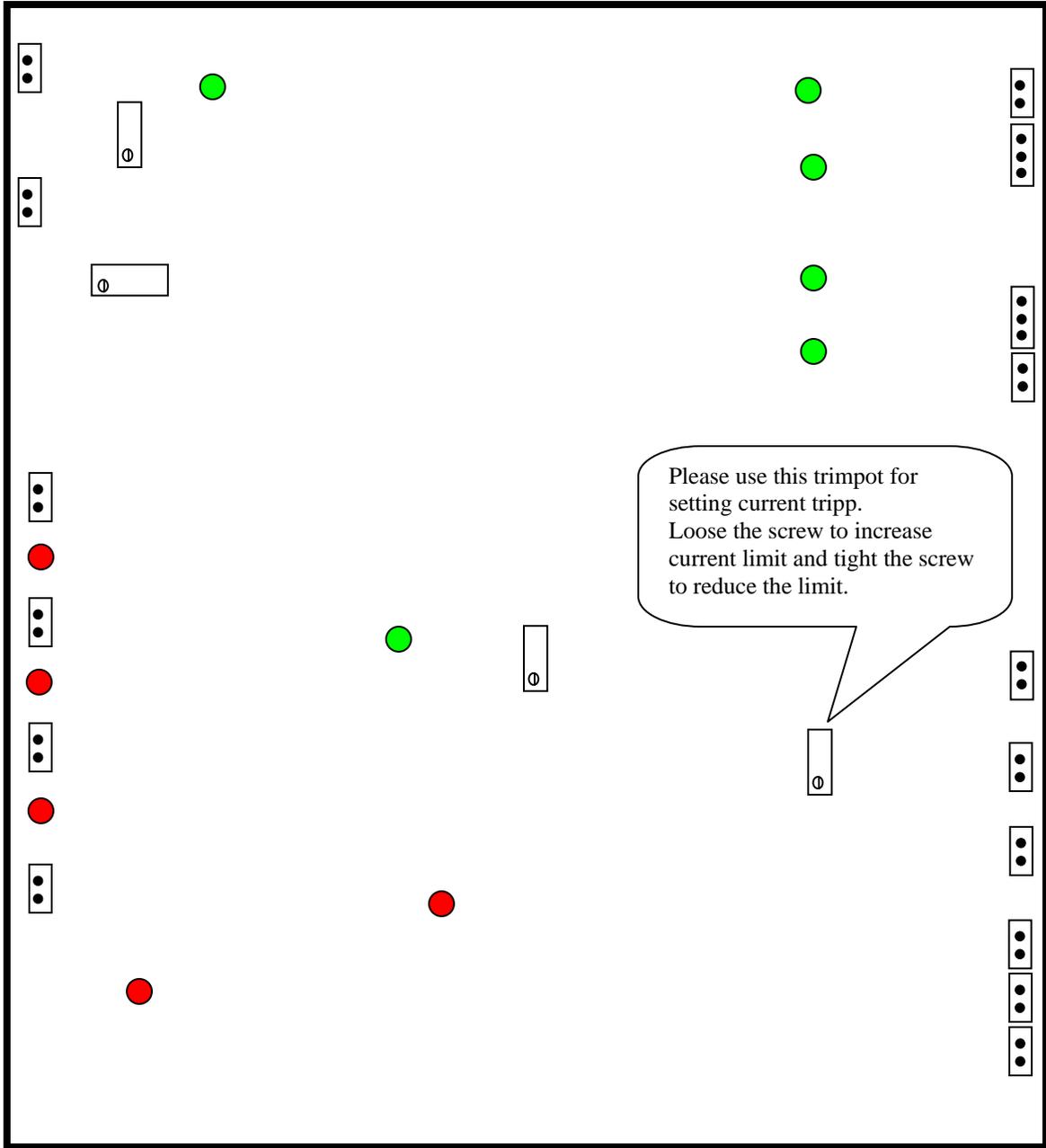
8. When you place the crucible but NO CRUCIBLE Light does not stop and machine does not start.

In this case you will have to adjust the sensor of the machine as directed in diagram below.



- A] Loosen the screw on Aluminum Block so that sensor can move.
- B] Place the crucible and adjust the sensor so that sensor lifts the crucible by 5 - 8 mm.
- C] Now tighten the screws. In this case when you place the crucible the spring is pressed by 5-10 mm and the micro switch will record that crucible is in place.
- D] Make sure that when you place the crucible the No Crucible signal stops.

Electrical Diagrams



Main Board

Electrical Connections for Machine

Red Wire ----→	Red Phase
Blue Wire ---→	Blue Phase
Yellow Wire -→	Yellow Phase
Black Wire -→	Neutral
Green Wire -→	Earth Connection
White Wire →	No Connection

Electrical Connections for Chiller

Red Wire --→	Red Phase
Blue Wire --→	Blue Phase
Yellow Wire --→	Yellow Phase
Black Wire --→	Neutral

Warranty Conditions

- 1. We Guarantee the Induction Gold Melting Machine of 10Kg against all manufacturing defects during 12 months from the date of sale by us or through our dealers.**

- 2. The guarantee will become INVALID**
 - a) If the machine is not operated as per instruction given in the manual.**

 - b) If the agreed payment terms and other conditions of sale are not followed.**

 - c) If the customer resale the machine to other party.**

 - d) If the customer tries to open the machine and creates any fault deliberately.**

- 3. The non-working of the machine is to be communicated to us immediately giving full details of the complaints and defects noticed. On receipt of this, we will give suitable instructions regarding the repair of machine.**

Our contact Details

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