

Furnaces for Making Precious Metals Ingots



The TIP furnaces are designed to manufacture any size of ingots, from 100 g to kilo-bar either in gold or silver. The ingots are obtained by melting the pre-weighted grains in a graphite mould placed inside the vacuum chamber and then by cooling appropriately the ingot during the solidification phase.

The machine is fully automatic having more than 100 programs for different ingot sizes. The operator only has to load the graphite mould with the pre-weighted grains into the holding disk, close the loading chamber and press the START button to launch the automatic cycle. At the end of the cycle the furnace will return the gold or silver bar ready for the market.



In order to increase the productivity, the system has been conceived with 2 loading chambers and one melting chamber. This configuration allows for melting the next ingot while the previous one is cooling. This overlapped working mode is also important to decrease the running cost of the process because they are mainly related to the graphite mould consumption. A colder graphite mould in output increases the life of the same.

The heart of the machine is the induction generator and its coil, designed to maximize the heat transfer during the cycle. After loading the graphite mould, a pneumatic jack will lift the part up perfectly into the center of the magnetic field and the melting step will begin.

All melting and cooling process occur in a closed chamber in which vacuum and inert gases guarantee no metal or graphite oxidation. Gas can be chosen between Argon or Nitrogen.

	TIP12	TIP40	TIP100
Application	Gold and Silver Ingots	Gold and Silver Ingots	Gold and Silver Ingots
Number of casting programs	100	100	100
Max ingot weight	500g Silver 1000g Gold	500g Silver 1000g Gold	400 oz
Max ingot footprint	115,5 x 52,5 mm	115,5 x 52,5 mm	200 x 80 x 45 mm
Productivity	10 kilo-bars 24kt gold per hour or 25 x 100g ingots per hour	25 kilo-bars 24kt gold per hour or 100 x 100g ingots per hour	6 x 400 oz Gold ingots per hour
Induction power	12 kW	40 kW	100 kW
Vacuum pump	Built-in 25 m ³ /h	Built-in 25 m ³ /h	Built-in 100 m ³ /h
Gas consumption	20 liter / cycle	20 liter / cycle	40 liter / cycle
Max. temperature	1600 °C	1600 °C	1350 °C
Autotest with data report	●	●	●
Monitoring system for data acquisition	○	○	○
Mold check before melting	●	●	●
Vacuum leakage detector	●	●	●
RS232 remote interface	○	○	○
Other features	It is possible to produce 4 small bars of 150 grams Au at the same time by using a different mould design		

● Provided - ○ Available on request