



ITALIMPIANTI ORAFI
S.p.A.

6 / 8 Kgs. Gold Refinery Setup
"Full Package"



ITALIMPIANTI ORAFI
S.p.A.

"ASSAY LAB"

ASSAY LAB
(10 / 12 assay results per day)





ITALIMPIANTI ORAFI
S.p.A.

“ASSAY LAB”

DRILLING OPERATION

BENCH DRILL TYPE TRB/A

The bench drill is used to draw out samples of precious metals to be assayed.
It is a high precision bench drill mounted on oversized ball bearings.

TRB/A Bench Drill



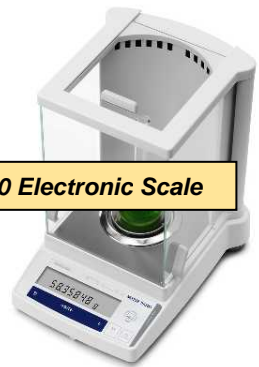
WEIGHING THE SAMPLE

ELECTRONIC ANALYTIC BALANCE TYPE ABT220

This high quality precision scale is used to weigh the metal samples to be assayed.

- Weight range : from 0 to 82 gr (indicates up to five decimal figures)
- Weight range : from 0 to 220 gr (indicates up to 4 decimal figures)

ABT220 Electronic Scale



ANTI-VIBRATING TABLE TYPE TAV/A

This wooden table is covered with “Formica” and has a marble anti-vibrating surface, which supports the analytic scale.

Dimensions : 890x710x800 mm (L x W x H)

TAV/A Anti-Vibrating Table





ITALIMPIANTI ORAFI
s.p.a.

"ASSAY LAB"

CUPELLATION

CUPELLATION FURNACE Type FCOPP/MS

The cupellation furnace is used to remove all the non-precious metals from the sample of precious alloy to be assayed.

The heating part of the furnace is made with kanthal heating resistances.

- Max. working temperature : 1200°C
- Silicon carbide muffle dim : 115 x 220 x 70 mm
- Voltage : Single - Phase
- Power : 2.7 KW
- Dimensions : 400 (Width) x 650 (Depth) x 750 (height) mm.

FCOPP/MS Cupellation Furnace



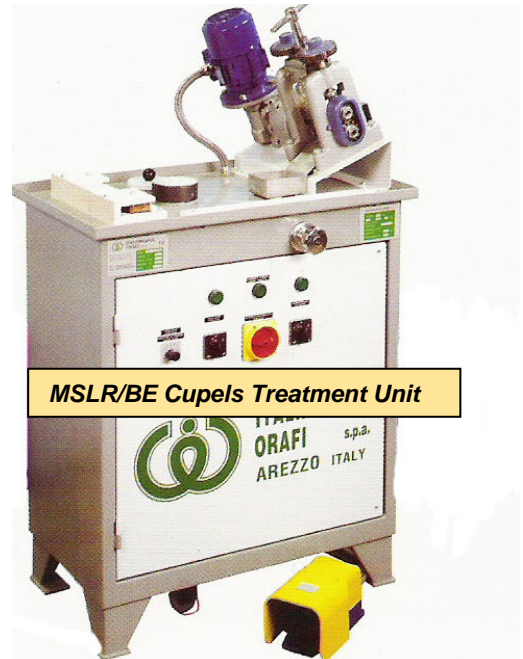
ANNEALING

MACHINE FOR THE TREATMENT OF CUPELS TYPE MSLR/BE

The MSLR/Be is used for crushing, rolling and annealing those cupel balls needed for the assay process.

- Power supply :
- Total power :
- Dimensions : 750 x 450 x 1300 mm.
- Weight : 90 Kg

MSLR/BE Cupels Treatment Unit





ITALIMPIANTI ORAFI
S.p.A.

“ASSAY LAB”

ACID ATTACK

SEPARATION HOOD TYPE CS/BE

The hood is used to separate various metals contained in an alloy by using acids.

It is made out of polypropylene sheets and it is fitted with one 1700 W electric oven having a power-regulator and six places for beakers. Voltage for heating the acids in the beakers is adjustable.

The hood is also fitted with internal aspirator.

- 6 place ovens : n°1
- Power : 2 kW
- Dimensions : 900 x 650 x 1820 mm
- Weight : 60 Kg

CS/BE Separation Hood



SCRUBBING OPERATION

ACID FUMES SCRUBBER TYPE TLF/400E

The tower is used to neutralize fumes and taking organic substances. It is built with polypropylene sheets and a sprayer to spray a thick layer of raschig rings is placed on the inside of the tower.

In order to avoid the passage of drops, a second layer of raschig rings has been placed over the sprayer.

The container for the neutralization solution is placed beneath the tower and has a recycling pump for the solution.

- Power : 0.25 kW
- Overall dimensions : 653 x 700 x 2165
- Weight : 65 Kg

TLF/400E Fume Scrubber





ITALIMPIANTI ORAFI
s.p.a.

“Melting Section”

MEDIUM FREQUENCY INDUCTION MELTING FURNACE **Type FIM/7NT**

The furnace is ideal to melt precious metals. All ITALIMPIANTI ORAFI induction-melting furnaces are fitted with static frequency converters.

A high efficiency of the electrical output that drastically reduces electricity consumption, maintaining the production rate, is obtained by the frequency conversion system used.

The modular construction of the electric circuit board greatly simplifies maintenance operations and guarantees high reliability even in the most demanding working conditions.

The highest technical standards used to design the inductors along with the modular construction and the use of only high quality materials guarantee maximum production even in the worst conditions.

Technical Data:

- Rapid interchangeability of the crucible
- Protection of the metal while melting by an inert gas
- Manual extraction of the crucible using the appropriate pincers
- Automatic temperature control of the metal
- Absorbed power : 7 kW
- Power output : 6.5 kW
- Required quantity of the cooling water: 15 lt/min
- Capacity of the crucible : 8.5 Kg of Au
- Melting time : 15 minutes
- Dimensions : 585 x 610 x 1015 mm. (L x W x H)
- Weight : Approx. 190 Kg



- Display monitoring of the working parameters of converter as tension and absorbed power.
- Computerised alarm diagnostics to sensor as many as 12 alarms or warnings which the worker must take note of for the system to work properly. Instructions and advice are shown on the display.
- Closed ring power regulation which allows the system to absorb the set power regardless of the quantity and type of metal to melt.
- Pulse stirring function for special alloys

Three-phase power-supply transformer:

- **Nominal tension** : depends on where the machines
- **Allowed fluctuation of the electrical mains** : +/- 10%



ITALIMPIANTI ORAFI
S.p.A.

“Meltina Section”

**Additional Units / Accessories
For the “Melting Section”**

GRAINS PRODUCTION TANK

Type RPG/EB

(To produce gold grains/flakes to be refined)

The container is used both for the production of metal balls and of fine sand (dimensions: 1-2 mm³) used for refining.

It is made entirely out of stainless steel and is cylindrical in shape.

It can be easily tilted to recover the grains. It is also fitted with a centrifugal pump to circulate the water as well as to empty the tank.

Technical Data:

- Power supply : Three-phase
- Power : 0.4 Kw
- Capacity : 150 lts.
- Overall dimensions : 900 x 900 x 1200 mm. (length-width- height)
- Weight : 50 Kg



Example of Flakes / Grains to be used for refining ⇒

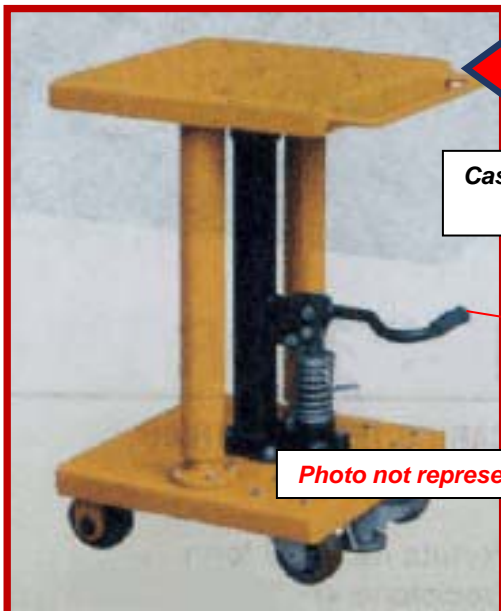


SERVICE TROLLEY

Type CPL

It is used for making the gold bars to be analysed.

The trolley, an iron structure, is placed on four wheels and it is provided with a cast-iron work surface. The unit is supplied with two cast-iron ingot moulds.



**Cast-iron Ingot mould to be placed on the trolley in order to make the bars.
(To be quoted separately, not included on the price).**

Hydraulic lifting system

Photo not representative of the actual Unit



ITALIMPIANTI ORAFI
S.p.A.

“Melting Section”

**Additional Units / Accessories
for the “Melting Section”**

WATER CHILLING UNIT **MODEL FRIGO/15** **(WRA 70)**

These chilling units are ideal for all cases where it is important to keep the temperature of the cooling water within certain limits. Suggested uses are with:

- *Water cooled induction melting furnaces*
- *Trichloroethylene degreasing machines*
- *Brazing belt furnaces*
- *De-oxidation furnaces*
- *Fumes condensers for hollowing and refining plants.*

Technical characteristics ↓

Cooling power:	7,4 kW
Power Supply:	400 / Three-Phase / 50 Hz
Overall Dimensions:	cm. 570 x 740 x 1146 (height)





ITALIMPIANTI ORAFI
S.p.A.

“Aqua Regia Gold Refining Section”

IAO/BR25 TUMBLER REFINING UNIT FOR GOLD ALLOYS AND PRECIOUS ASHES

**No. 2 Graduated tanks for HCl and HNO₃ acids .
Acid transfer inside the Tumbler is made by a vacuum system.**

**Polypropylene Hood
Containing the Tumbler/Reactor**

Pyrex glass Condenser

**Tumbler Refining
device with a useful
volume of 25 litres.**

Precipitation Unit

100 litres Acids storage tanks

Trolley Filtering Unit:

- **Diam.: 400 mm.**
- **Height: 450 mm.**



ITALIMPIANTI ORAFI
S.p.A.

"Aqua Regia Gold Refining Section"

The maximum daily quantity that you can refine every day is of 8 kgs. of gold flakes getting a final gold purity of 999,5/1000 (minimum).

It is a polyvalent unit as it allows to refine the gold grains as well as the casting scraps and some types of precious ashes).



Gold Grains /Flakes to be refined ↑



Casting Scraps ↑



Precious Ashes ↑

The plant is mainly made up of :

- Polypropylene hood containing with suction fan to be connected to a fume scrubber. Designed to the recover any acid losses.
- One big cylinder made of polypropylene with a useful capacity of 25 litres (acids plus gold grains), this cylinder is inclined of 25° and it continuously rotates by means of a special motor, with the possibility to adjust also the speed rotation.
- No. 2 Graduated tanks for HCl and HNO₃. Acid transfer from the reactors by vacuum.
- No. 1 PPI tray where two 100 lt containers for HCl and HNO₃ acids are stored.
- No. 1 Filter unit on wheels with a compressed air diaphragm pump to transfer the solutions.
- No. 1 150 litres Cementation Unit.
- No. 1 Electrical board

Technical Data:

- **Power supply** : Single - phase.
- **Power** : 0,8 Kw
- **Overall dimensions** : 2000 x 1000 x 2300 mm. (Length – Width - Height).
- **Weight** : 400 Kgs

ITALIMPIANTI ORAFI S.p.A. – Via Provinciale di Civitella, 8 – 52041 Badia al Pino – Arezzo – Italy

6 / 8 Kilos Gold refinery Offer



ITALIMPIANTI ORAFI
S.p.A.

“Aqua Regia Gold Refining Section”

WATER CHILLING UNIT **Type FRIGO/10**

(To use for the cooling step of the Glass Pyrex Condenser of the IAO/BR25 Refining Plant)

These chilling units are ideal for all cases where it is important to keep the temperature of the cooling water within certain limits.

Suggested uses are with:

- *Water cooled induction melting furnaces*
- *Trichloroethylene degreasing machines*
- *Brazing belt furnaces*
- *Annealing furnaces*
- *Fumes condensers for hollowing and refining plants.*

Technical characteristics:

Cooling output:	<i>Frig/h : 3920</i>
Power:	<i>2,5 kW</i>
Tank capacity:	<i>25 lt</i>
Dimension:	<i>744 x 550 x 860 (L x W x H)</i>
Weight:	<i>80 Kg</i>
Power supply:	<i>Single phase</i>



Photo not representative of the actual unit



ITALIMPIANTI ORAFI
S.p.A.

"Aqua Regia Gold Refining Section"

NEUTRALIZATION TOWER FOR FUMES **Type TLF/750**

To be used for the neutralization step of the fumes coming from the above "Tumbler Refining Unit Type IAO/BR25".

Description

The tower is used to neutralize fumes and remove organic substances. It is built out of polypropylene sheets. A sprayer is installed inside the tower to spray a 1000 mm thick layer of raschig rings.

In order to avoid drop dragging, a second 200 mm thick layer of raschig rings has been placed upstream to the sprayer.

A neutralization solution container is placed beneath the tower. The solution circulation pump has a capacity of 55 Lts/1' with a head of 6 m.

The suction fan has a max capacity of 300 m³/hour.

Technical data:

- Power supply : Three-phase.
- Power : 0,95 kW
- Overall dimensions : 1350 x 1050 x 2800mm. (Length – Width - Height).
- Load-less weight : 100 kg
- Working weight : 380 kg
- Capacity : 300 m³/h with 5"contact time

Photo not representative of the actual Unit

