

IKOI SRL

ITALY

MODERN MACHINES TO MANUFACTURE GOLD BARS

IKOI Srl produces machines to assist bar manufacturers and mints to make gold bars and coins.

Its headquarters and factory are located in **San Zeno di Cassola**, near Bassano del Grappa in northern Italy, 200 km east of Milan and 50 km north west of Venice.

San Zeno di Cassola is a small town overlooked by the Italian Alps that border Austria.

Bassano del Grappa is renowned as the city where Italy's famous distilled spirit "Grappa" originated.

MACHINES TO MANUFACTURE CAST BARS

Two technologies are offered:

Traditional Technology

Molten gold is poured into open bar moulds.

Flameless Tunnel® Technology

Gold grains in graphite moulds are melted in a flameless tunnel that derives its heat from induction.

In April 2013, the London Bullion Market Association (LBMA) approved the use of induction tunnel systems in the manufacture of London Good Delivery 400 oz bars.

The two technologies are also used when producing machines to manufacture cast **silver** bars.

TECHNICAL DESCRIPTION

Flameless Tunnel® Machines

The machines can produce up to 800 small bars per hour, dependent on the installed melting power of the unit.

Flameless Tunnel® Technology offers several advantages over Traditional Technology:

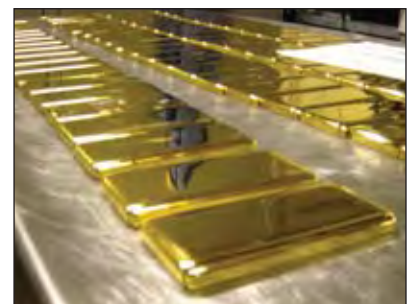
- Safer to operate: no exposure to fire.
- Cleaner: no exposure to fumes.
- Higher quality bars: surfaces are smooth.
- Faster: many more bars per hour can be produced.
- No weight loss: bars have exact weights as denominated.
- Reduction in energy use: up to 50% less.



IKOI, a leading producer of gold bar manufacturing machines, has its headquarters in San Zeno di Cassola in northern Italy.



The company offers machines that use Flameless Tunnel® technology.



IKOI machines can produce up to 800 bars per hour.



| Bar Weight | Production per Hour | |
|------------|---|---------|
| | Range Dependent on Melting Power: 15 KW to 240 KW | |
| | Minimum | Maximum |
| 1000 g | 5 | 200 |
| 500 g | 5 | 200 |
| 250 g | 10 | 400 |
| 100 g | 20 | 800 |
| 50 g | 20 | 800 |
| 10 tola | 20 | 800 |

| Bar Weight | Production per 8-Hour Shift | |
|------------|---|---------|
| | Range Dependent on Melting Power: 50 KW to 250 KW | |
| | Minimum | Maximum |
| 400 oz | 23 | 150 |

Source: IKOI Srl



A machine that produces grains of gold.

Traditional Machines

The machines, which rely mainly on manual handling, are popular with manufacturers that produce relatively few bars.

| Bar Weight | Production per Hour | |
|------------|---|---------|
| | Range Dependent on Melting Power: 2.0 KW to 30 KW | |
| | Minimum | Maximum |
| 1000 g | 3 | 25 |

| Bar Weight | Production per Hour | |
|------------|---|---------|
| | Range Dependent on Melting Power: 15 KW to 300 KW | |
| | Minimum | Maximum |
| 400 oz | 2 | 15* |

Source: IKOI Srl. * Maximum if a semi-automatic motorized system moves the moulds.



A "dosing" machine adds a small amount of wire clippings to each crucible or mould containing grains.

This ensures that each bar will contain exactly the required weight of gold.

Graining and Dosing/Weighing Machines

To assist manufacturers, using Flameless Tunnel® Machines or Traditional Machines, to produce bars (1000 g and less) that contain the required precise amount of gold, the company also manufactures Graining Machines and Dosing/Weighing Machines.

Graining Machine: produces the grains for placing in a dosing/weighing machine from which they will be poured into a bar mould, appropriate to the designated weight of the bar. Output: up to 500 kg per hour.

Dosing/Weighing Machine: adds minute weights of gold (normally cut automatically from gold wire) to a crucible with grains to ensure that the bar mould, prior to melting, contains the exact amount of gold as required (e.g. 100.00 g at 999.9).

MACHINES TO MANUFACTURE MINTED BARS AND COINS

The company produces machines for manufacturing minted gold bars and coins.

While the main machines are made in-house by IKOI, others are supplied by sub-contractors, e.g. rolling mills.



Graphite moulds containing an exact weight of gold grains and wire, prior to being melted in a Flameless Tunnel® Machine.



The range includes:

- Strip Continuous Casting Machines
- Annealing Belt Furnaces
- Rolling Mills
- Automatic Conveyor Feed Systems
- Minting Presses
- Stamping Machines

IKOI services all machines it installs, including those supplied by sub-contractors.

BACKGROUND

IKOI Srl is a private company, owned and managed by Giovanni Faoro, who has been associated with the melting, heating and chemical treatment of precious metals since the late 1970s.

In addition to producing machines that manufacture bars, coins and grains, the company produces many other machines, notably for the jewellery manufacturing industry.

The company, if requested, can also provide entire bar manufacturing plants and, with the support of sub-contractors, can also co-ordinate the manufacture and supply of entire precious metal refinery plants.

IKOI has produced bar manufacturing plants for more than 50 companies in over 20 countries, including the following;

| Region | Country |
|----------------------|--|
| Europe | Austria, Belgium, Germany, Italy, Norway, Portugal, Switzerland, UK, |
| Americas | Canada |
| Middle East | Iran, Turkey, UAE |
| Indian Sub-Continent | India, Sri Lanka |
| Far East | China, Japan, Indonesia |
| Africa | Ghana, South Africa |
| CIS | Russia, Kazakstan, Kyrgystan, Uzbekistan |

Source: IKOI Srl

To support its customers on an ongoing basis, the company has appointed and trained agents in many countries to service IKOI machines.

Number of employees: 31

Website: www.ikoi.it

RESEARCH AND DEVELOPMENT

IKOI's Research and Development department collaborates with international research institutions and universities, notably the University of Calabria and the University of Padua, to ensure a high level of service to its customers.



Continuous casting machines generate flat strips of gold for the manufacture of minted bars and coins.



Annealing belt furnaces harden the blanks that are used to produce minted bars and coins.



IKOI can design and produce, if requested, complete bar manufacturing plants.



MACHINES TO MANUFACTURE SMALL CAST BARS

FLAMELESS TUNNEL® TECHNOLOGY

Bars from 50 g up to 1000 g



Z53_05

IKOI machines can produce up to 200 kilobars or 800 x 10 tola bars per hour.

TRADITIONAL TECHNOLOGY

Bars from 50 g up to 5000 g



Z53_52

IKOI machines can produce up to 25 kilobars per hour.



MACHINES TO MANUFACTURE 400 OZ CAST BARS

FLAMELESS TUNNEL® TECHNOLOGY



Z53_10

IKOI machines can produce up to 150 x 400 oz bars per 8-hour shift.

TRADITIONAL TECHNOLOGY



Z52_200

IKOI machines can produce up to 15 x 400 oz bars per hour, if a semi-automatic motorized system moves the moulds.





IKOI can design, equip and install, if requested, large or small precious metal refining plants.



The entrance to IKOI's factory in San Zeno di Cassola.

The company also produces machines to assist jewellery manufacturers around the world.



Refer to disclaimer on website: www.goldbarsworldwide.com

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