

PRODUCT

THE ALUMINIUM INGOT OF TOMORROW

The new Properzi Track & Belt system

Regardless of the starting material (molten aluminium or scrap), the usual re-melt forms standardized worldwide are ingots. Tee-bars and sows are less popular.

For many years ingots have been produced with the traditional mould chain and such ingots are referred to as “Open Top Ingots” in the market.

Although many improvements have been made over the years, several problems related to the general design concept remain unresolved:

OPEN TOP INGOT DRAWBACKS

- **Heavy weight (E.C. Al) for high production rate**
- **Inconsistent geometry**
- **Instability of the ingot bundles**
- **Loss of metal due to skimming**
- **High rate of rejection due to off-size**
- **Critical de-moulding operations**
- **Dangerous cracks and voids within the ingot**
- **Necessity of using at least three straps to secure each bundle; the use of five straps is also quite common**

The recently patented Properzi Track & Belt Ingot Casting Machine Model 1 and Model 2 transform the molten metal into a continuous cast straight bar of trapezoidal shape with total repeatability. This cast bar is cut into ingots of precise length by a rotary shear. The ingots are then cooled in line to a temperature of 70-80°C in order to allow the palletization and strapping operations with plastic or steel straps.

ADVANTAGES OF PROPERZI INGOT

- **100% repeatable shape, dimensions and weight**
- **Consistent dimensions and shape of ingot bundles with high stability**
- **35% less space required for storage**
- **The cast bar is solidified with zero cracks and no dangerous voids**
- **Skimming is not required**
- **Traceability data mechanically imprinted**
- **Zero de-moulding problems**
- **Minimum number of straps needed**

Thanks to the advantages listed above, the Properzi system boasts one of the lowest Operational Expenditures (OpEx) available in the market to produce ingots either for primary smelters or for scrap reclamation.



Properzi ingots during bundling phase.

The Track & Belt process is gaining wide acceptance in many countries from Italy to Mexico, from Poland to Russia and China.

We have also enjoyed record repeat orders from Raffmetal (Italy) with five (5) machines ordered, four (4) of which are in production!

The Properzi T&B Ingot Casting Lines can work either in continuous operation reaching an Overall Equipment Efficiency (OEE) exceeding 90% or on a batch basis as requested by most refineries of aluminium scrap.

Ingots can be of 8.5, 10.0 or 15.0 kg always having a maximum length of 720 mm but it is also possible to produce ingots 600 mm long with different relative weights.

Different plant configurations can provide ingot production rates ranging from 10 tph or higher for secondary alloys and up to 28 tph for pure aluminium.



Lines to produce ingots of special size and weight tailored to customer needs are available upon request. Properzi is also willing to supply such plants on an Engineering, Procurement and Construction (EPC) basis so that the buyer is only minimally involved with the installation of the plant.



The inventor Giulio Properzi near the Track & Belt machine. The T&B machine is based on a kind of “caterpillar”, in continuous movement, formed by a series of short moulds creating a channel that is closed by a steel belt tensioned by three pulleys. The “caterpillar” receives the molten metal via the standard horizontal pouring system (on the left) and is cooled, along with the belt, by water sprays. When the belt leaves the mould chain (on the right) a solid aluminium bar exits the casting machine and travels to the rotary shear to produce the ingots.