

“Always Looking Forward, Always a Step Ahead”

by:

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This is the company motto behind the innovative spirit leading to the development and delivery of complete aluminum and copper wire rod production systems, from the furnace to the rod coiler.

Continuus-Properzi pioneered the process of continuous casting and rolling of nonferrous wire rod in the late 1940s. Within the next 10 years, Properzi aluminum wire rod lines were acquired and utilized by the most important aluminum companies of that era including Pechiney, General Cable, Anaconda Wire, Universal Cables, Southwire, Essex, Alcan, Olex, etc., located in various parts of the world including Europe, North America, Asia, South America and Australia.

In the early 1960s, Properzi delivered the first two continuous casting and rolling lines for copper rod—one in the USA and one in Russia. This disruptive technology rendered the Properzi name synonymous with Continuous Casting and Rolling (CCR) Lines and established Continuus-Properzi as the leading global supplier for nonferrous wire rod lines. To date, we have well over 300 wire rod lines operating in approximately 60 countries throughout the world.

Our largest markets are aluminum and copper. We provide complete wire rod production systems from the furnace set to the coiler, from the equipment hardware to the automation and controls, from the technological know-how to all the required ancillary support systems. In this article, we would like to highlight some of the equipment that is engineered, designed, and manufactured by our Furnaces & Combustion Division.

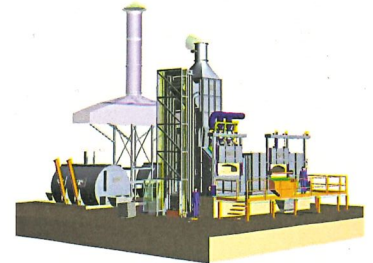
Latest Aluminum Processing Innovation

Our latest design on the aluminum side is the Vert-Melt furnace (see Figure 1). The Vert-Melt furnace is a combination of a vertical (shaft) melting furnace with a static receiving/holding chamber. This system (shown in Figure 2) provides several advantages when compared to the traditional rever-



Fig. 1 — Vert-Melt furnace.

Fig. 2 — Combination vertical (shaft) melting furnace with a static receiving/holding chamber.



beratory melting furnaces including the following:

- Compact lay-out
- High productivity
- Virtually automatic charging (see Figure 3)
- Constant melt rate (not hampered by the charging operation)
- Superior energy efficiency = savings
- Reduced metal loss
- User and maintenance friendly

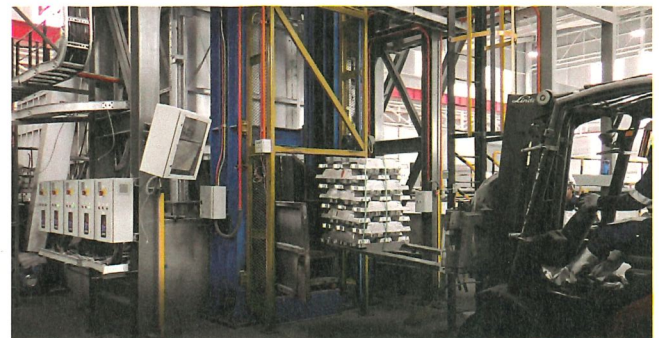


Fig. 3 — The Vert-Melt furnace provides virtually automatic charging.

The Vert-Melt furnace is the most advanced technological solution and provides the lowest operational costs for all those manufacturers of aluminum products that need to efficiently, consistently and reliably melt aluminum solid forms to obtain molten aluminum.

Latest Copper Processing Innovations

Our latest innovations on the copper side include various options for melting of copper scrap to produce Fire Refined High Conductivity (FRHC) copper. When it comes to the production of FRHC copper, Continuus-Properzi can offer numerous solutions. The available options are designed to meet the different market conditions (i.e., quantity and quality of available copper scrap) and production requirements (i.e., quantity and type of product requested) encountered by our

customers within their geographical location.

These solutions include our patented large top-loading refining furnaces for batch type processing, our Vert-Ref furnaces for continuous operations, and various combinations of these systems. In fact, we have numerous solutions designed to meet a wide range of annual production demands for FRHC products starting from 100% copper scrap.

We will briefly highlight our Vert-Ref Process. It is the evolution of the many Refining Systems supplied by Continuus-Properzi over the last three decades. The Vert-Ref Process facilitates the melting, slagging, refining and homogenization of copper scrap in a continuous or batch operation in order to obtain molten copper with a controlled content of impurities for the production of ingot, rod, billet or other copper products.

The Vert-Ref furnace set is fed with scrap having a copper content $\geq 97\%$ (see **Figure 4**). It is composed of a vertical (shaft) furnace followed by refining chambers and varying configurations of holding/reduction furnaces (see **Figure 5**). The system is very flexible and offers many possible configurations to account for downstream production processes that may be continuous or discontinuous. Advantages of the Vert-Ref system include:

- Increased thermal efficiency
- Longer refractory life and very short downtimes
- Easier slagging and refining
- More economical refining process/less additive usage
- Improved final chemistry of the molten copper
- Easier fumes filtration



Fig. 4 — The Vert-Ref furnace set is fed with scrap having a copper content of $\geq 97\%$.

Transforming Rod Into Wire & Other Products

In the last few years, Properzi has also developed equipment and technology for transforming wire rod into wire and other products.

For example, our patented Self-Annealing Microrolling® (SAM) method (see **Figure 6**) processes 8 mm copper rod to

Fig. 5 — Vertical (shaft) furnace followed by refining chambers and varying configurations of holding/reduction furnaces.

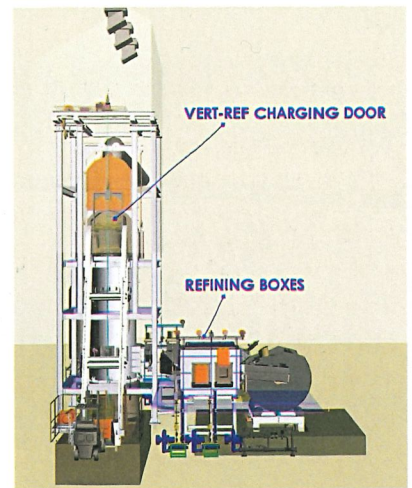


Fig. 6 — Self-Annealing Microrolling® (SAM) method.

provide wire with an elongation above 30% to feed downstream multiwire drawing applications. The SAM process totally avoids the costly, energy intensive, resistance annealing process thereby facilitating energy savings of approximately 50% compared to the conventional drawing/annealing rod breakdown process.

And another example is our technology for continuous rotary extrusion machinery, which has been branded under the name Pro-Form, which stands for Properzi Forming (see **Figure 7** on next page of this article). This technology is applicable for both aluminum and copper and the range of applications is almost infinite. The major applications include solidal conductors, Al profiles, Cu profiles, Al bus-bars, Cu bus-bars, and Al tubes and multipoint tubes. Another application for Pro-Form technology is the production of Aluminum Clad Steel (ACS) wire.

Continuus-Properzi was born as a result of innovation

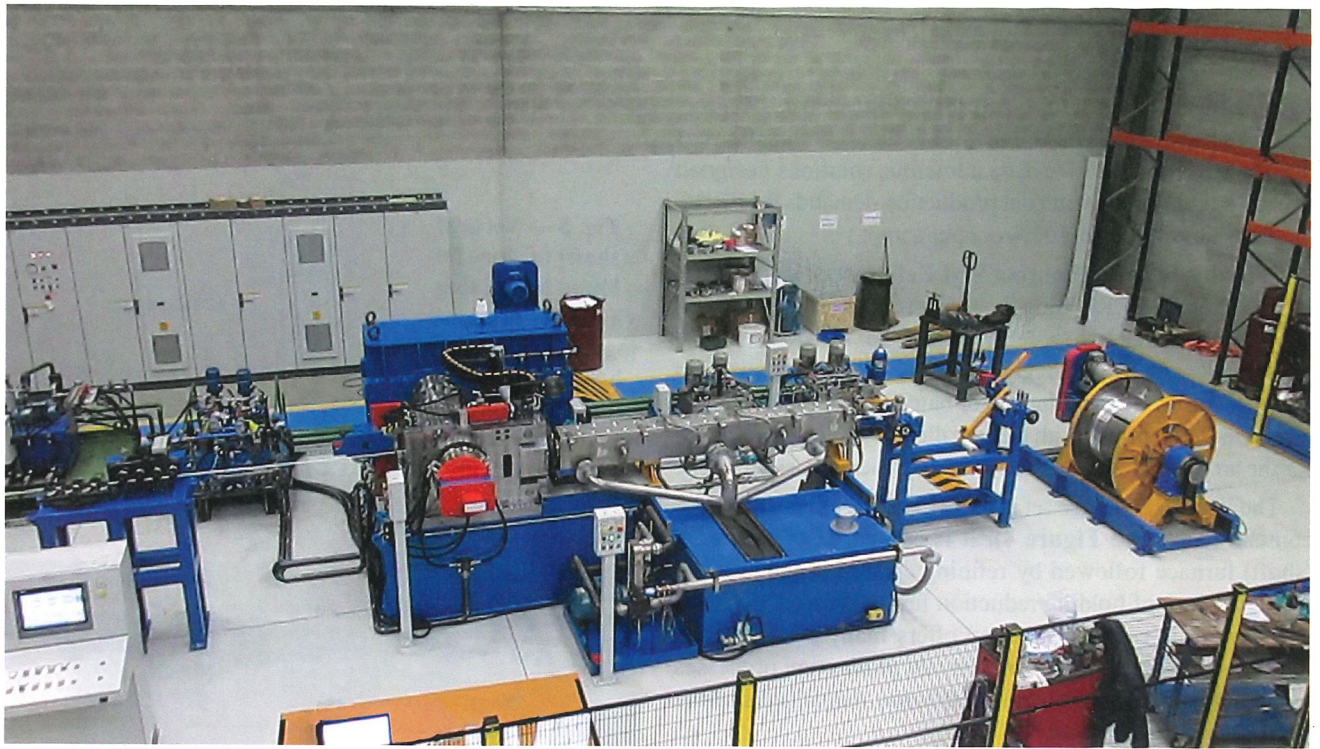


Fig. 7 — Pro-Form continuous rotary extrusion system.

and this innovative spirit has become engrained in our DNA. From the introduction of the disruptive Properzi technology that revolutionized the nonferrous wire rod production process, to the many process and equipment innovations we have introduced such as Vert-Melt and Vert-Ref Furnace Sets, Self-Annealing Microrolling, and Pro-Form Rotary Extrusion, Continuus-Properzi has always provided state-of-the-art technology and unparalleled customer service.

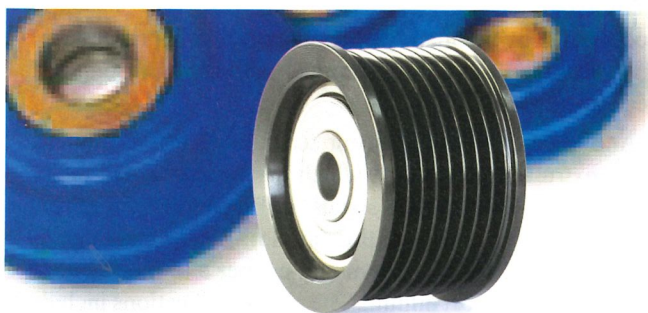
In many cases, the market was not yet ready for some of our innovations, and our President and CEO, **Giulio Properzi**, would say, “Sometimes if you are too far ahead, you stand alone!” Nonetheless, Continuus-Properzi is “always looking forward, always a step ahead!”

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Company Profile:

First and foremost, **Continuus-Properzi** is a pure engineering company, and its specialized know-how is transformed into tailor-made equipment to fit its customers’ requirements. The company has always been committed to offering its customers technical and technological solutions of absolute excellence in quality and innovation. Some of its many examples include: Microrolling®, Track & Belt caster, and Vert-Ref Furnaces. Now Continuus-Properzi is driving its customers towards Industry 4.0, and this prompted the development of additional features for new plants and upgrading options for existing ones. These developments are aimed at responding to the specific needs of managers who have operational responsibilities. This allows these managers to be updated in real time and to react in a timely and decisive manner in order to obtain the best possible results. www.properzi.com



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