

Product Spotlight...

Compact and Scalable Casthouse System Converts On-Site Extrusion Scrap into Quality Billet

When it comes to environmentally sound practices in the aluminum industry, it's not uncommon to find many companies practicing the age-old saying of "penny-wise and pound-foolish." While some companies in the aluminum recycling industry have made remarkable progress in being penny-wise, many still practice (knowingly or unknowingly) their pound-foolish ways of transporting scrap and billet over long distances for toll conversion. However, fundamental changes in understanding the lifecycle of aluminum and the logistics of recycling metal units are now increasing the interest in sustainable recycling, which enables improved profitability and competitive advantage. For these reasons, MiniCast™ casting technology was designed by Almex USA Inc. to meet the needs of extruders to cast the highest quality extrusion billet, physically closest to the point of scrap generation.

Turn-Key Casthouse

At its core, MiniCast is a complete turnkey casthouse system that is compact, yet scalable, and allows for conversion of on-site scrap to billet (Figures 1-2). The entire setup is fully customizable to meet a facility's unique production needs and alloy changes, casting billet in diameters from 3-6 inches (76-405 mm). Billet production capacities range from as little as 500,000 lbs per month to over 6 million lbs per month. In addition, the system allows plants to diversify their alloy portfolio and expand their customer base by enabling wider ranges of product mix. There is no need to worry about space constraints, because the system is fully adaptable and can be configured to fit into a facility's existing layout. Most notably, MiniCast has an average payoff of as little as two years.

The entire system comprises all the components of a typical casting line, but on a scaled level, including: a high efficiency melting furnace, a MOLDEX™ molten metal transfer system, a LARS® degassing and purification system, a FILTRES™ ceramic foam filter, MEGA™ DC casting machine with CASTRIGHT™ au-



Figure 1. Complete MiniCast system.



Figure 2. MiniCast system for alloy development and R&D.

tomation, a complete water cooling system, a homogenizing furnace with rapid chill fan bank, an ULTRES™ ultrasonic inspection station, and a Z-MET™ molten metal analyzer.

Benefits

Scrap Conversion Savings: Scrap is typically transported back to scrap remelters (billet producers) for toll conversion or sold to scrap merchants. With an in-house scrap remelt system, such as MiniCast, aluminum fabricators can save approximately 5-7 cents per pound on scrap conversion costs.

Billet Supply Assurance: Because extrusion plants without in-house remelt facilities are completely depen-

dent on their suppliers for clean, reliable billet, they are usually forced into pricey and binding long-term contracts. Adding an in-house recycling system can not only cut down on costly contracts, but it can also emancipate the extruder from being completely dependent on its outside suppliers for material.

Alloy Flexibility: Purchasing small quantities of specialty alloys, such as 6005, 6082, 6463, or "Super T5" billet, can be nearly impossible in some markets, not to mention the extreme cost. The MiniCast system allows for aluminum extruders to produce specialty alloys in-house for a fraction of the price it would cost to purchase them—if available at all.

Quality Control and Assurance: By having an in-house remelt facility, extruders can guarantee that the billet produced in-house has the precise quality and composition specification required.

Green Technology: Transporting billet and scrap to and from a facility is not only costly, but environmentally harmful due to the amount of fuel and energy required. The MiniCast system eliminates the need for costly long distance metal transportation and opens doors to market one's own products as recycled eco-friendly materials.

Case Study

The concept of having an in-house remelt facility may be exciting but, at the end of the day, it has to make financial sense, too. In early 2014, a company in China purchased a MiniCast system because of the strategic advantages gained with casting specialty alloys, otherwise unavailable in the market. Other contributing factors to the company's decision include the economic advantages of the system, such as rapid return on investment and scrap conversion cost savings. The plant design, layout, and engineering provided by Almex, uses the Chinese company's existing building and infrastructure to optimize space use and minimize installation costs. Once installation of the MiniCast is complete, the extruder will have a complete combination billet and slab casting solution that fits into an area just 50 x 80 ft. For more information: www.almexusa.com.