MAXIMIZE EFFICIENCY WITH ADVANCED ALUMINUM MELTING SOLUTIONS

Aluminum furnaces

ANDRITZ

ANDRITZ METALS USA INC. 4

COMPLETE SOLUTIONS 5

ROUND TOP MELTING 6

TILTING MELTERS 7

HOLDING 8

PUSHER 9

PIT AND CAR BOTTOM 10

Technology makes it possible ANDRITZ makes it happen

ANDRITZ Metals USA has long-term experience and capabilities for serving the aluminum industry.

LONG LASTING EXPERIENCE

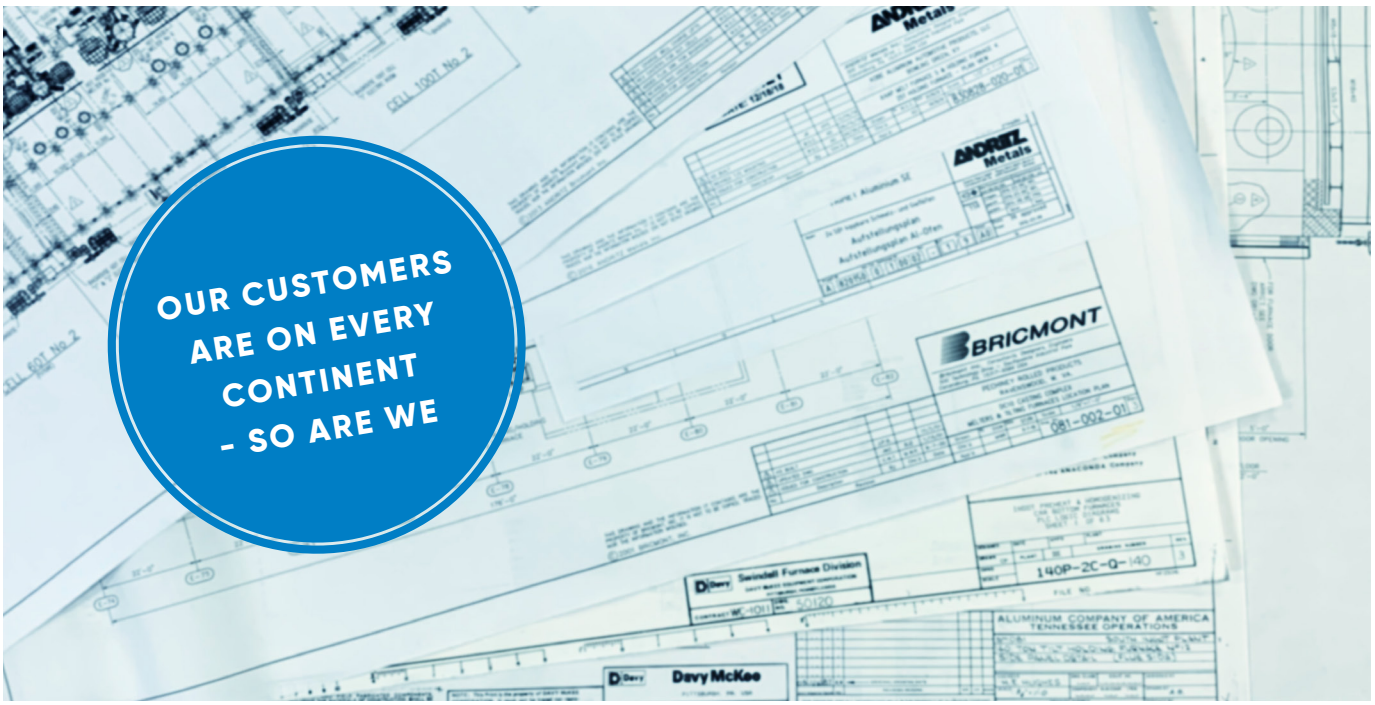
ANDRITZ Metals USA Inc. has a long history as a leading supplier of aluminum melting and holding furnaces. With the acquisition of Bricmont Inc., a global furnace supplier, and the aluminum furnaces of Davy-Swindell, ANDRITZ is in a unique position to fulfill customer's needs in today's global market. Davy began furnaces for the aluminum in the 1950's and just in the past 20 years, ANDRITZ installed furnaces have a casting capacity of over nine billion pounds/year (4 million MT/year). In order to be one of the leaders in aluminum furnaces for such a long period requires a superior product and a company that is commitmented to the product with a dedicated staff.

WE WILL BE THERE

ANDRITZ Metals USA Inc. in Canonsburg is part of the ANDRITZ Group. All the synergies through other furnace companies in the metal business area, like ANDRITZ Metals Germany GmbH, ANDRITZ Metals France S.A.S., and ANDRITZ Metals France S.A.S. Netherlands branch, will help us to provide even better customer service in other locations around the globe. It also allows us to provide equipment and solutions for our customer's entire product line. Additionally, the ANDRITZ China Ltd office in Shanghai completes the ability for ANDRITZ furnace supply worldwide.

Some of these include:

- High production round top melting
- Round top tilting melting
- Rectangular tilting melting
- Tilting holding
- Pusher
- Pit
- Car bottom



A global technology leader

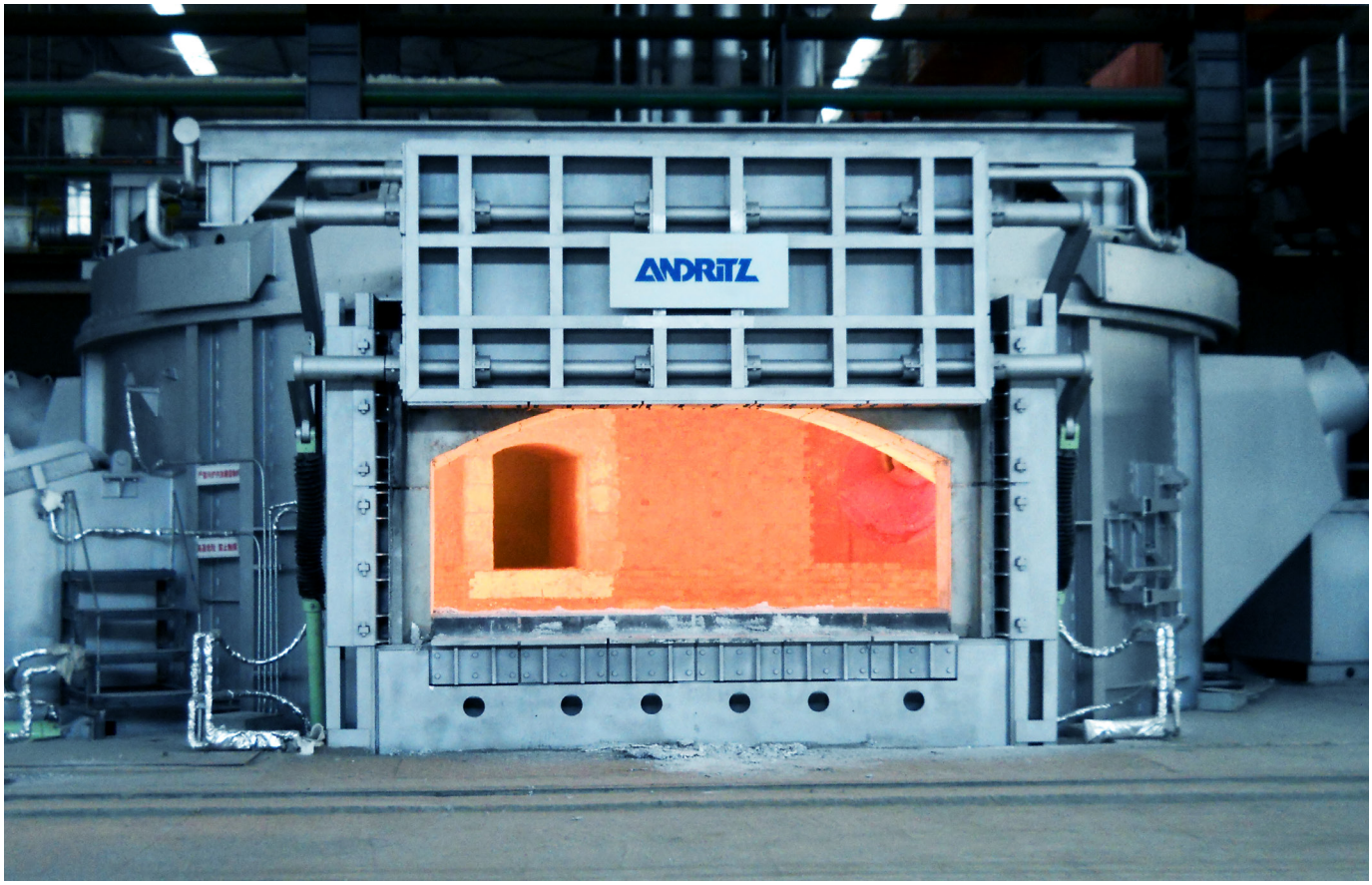
Our typical customers are processing molten or solid aluminum. We provide proven experience, expertise, design solutions, and construction services for both primary and secondary producers. Our large capacity round top melters and companion tilting holder furnaces are the industry standard. In addition to these products, we provide melters, holders, static or tilting, different fuel types, remelt, or recycle. If you are processing solid aluminum, we are your experts for preheat and reheat pushers, pits, car bottoms, auto-batch, fuel-fired, or electric furnaces. Furthermore, heat treating, strip annealing, homogenizing, or component reheating are also in our portfolio.

MODERNIZING AND REBUILDING

Customers want to involve experts when modernizing and/or rebuilding their existing equipment. Our project management and engineering teams utilize their qualifications, skills, and experience to provide our customers with the required level of expertise. Using our state of the art project management tool and critical path analyzes, we ensure that projects are completed on time, on budget, and to the desired specification.

TRAINING, START-UP SERVICES, CONSULTING

Our training, start-up, and consulting engineers are eager to engage with plant personnel to ensure better performance of the newly installed equipment or of the existing equipment in the plant. To run efficiently, the new or existing equipment might require some tuning and controls improvements to reach the maximum capacity with minimum fuel input.



Round Top Melting Furnaces

HIGH PRODUCTIVITY WITH MINIMUM FUEL CONSUMPTION

ANDRITZ Metals USA is the world leading supplier for large round top melting furnaces. Round top charge furnaces have significant productivity advantages compared to conventional rectangular units due to the quick and easy method of loading the charge. The solid aluminum charge is loaded into clam shell buckets and the can be loaded in large batches (25-30 ton per charge). The bottom emptying buckets are then transferred by the shop crane to the furnace where each bucket is lowered through the furnace's top opening and the solid aluminum is discharged on the hearth in preparation for melting. Each batch takes approximately six minutes and a typical 100 ton capacity furnace can be fully loaded and ready to melt in less than twenty minutes. These furnaces can also accept molten metal directly from the smelters. These furnaces are tapped to transport the molten metal to holding furnaces. A typical installation has one holder for each melter.

Utilizing a regenerative burner system, these furnaces are highly fuel efficient and can have melt rates up to 35TPH while still observing all environmental requirements.

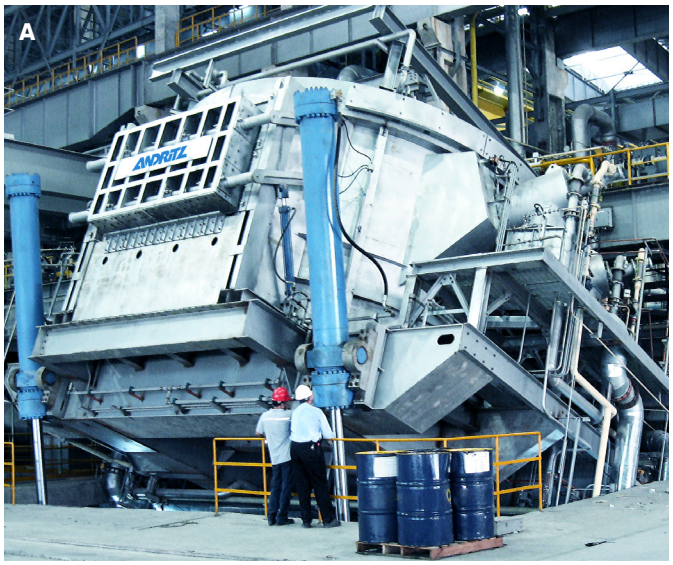
All aluminum grades or alloys can be melted using one of our round top furnaces. ANDRITZ Metals Inc. has completed installations for alloys in the 1xxx, 2xxx, 3xxx, 4xxx, 5xxx, 6xxx, 7xxx, and 8xxx series. Our customers deliver aluminum into the automotive, building, food packing, and marine industry. Special designs are offered to the aerospace industry to suit the special demands of 2xxx and 7xxx series alloys.

A 265,000 lbs (120 MT/hr) capacilty
B Charging liquid metal into furnace
C Charging a round top melting furnace

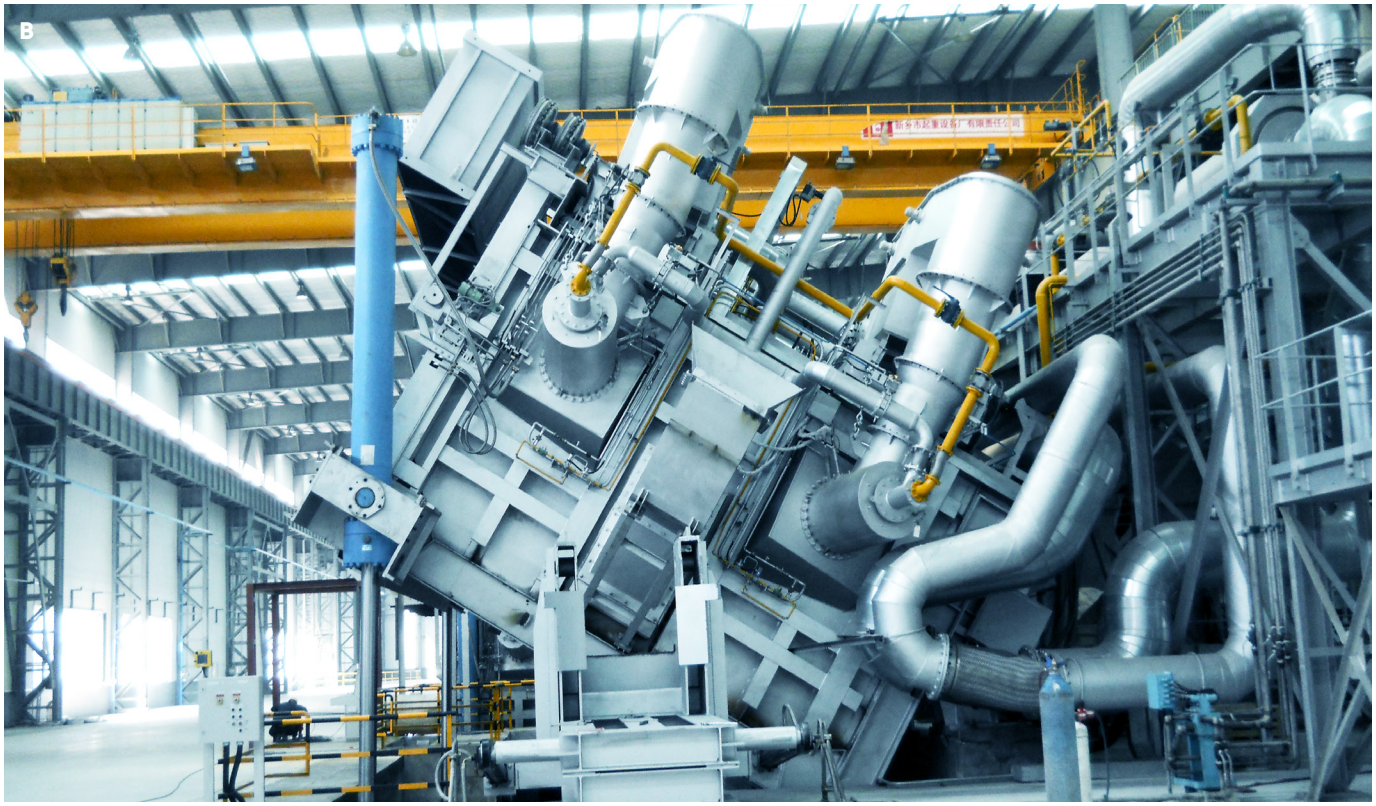
Tilting Melters Round Top or Rectangular

There are instances where tilting melters provide the needed solution. Tilting melters offer the advantage of completely emptying the melter. This is crucial when processing a mix of alloys, especially aerospace alloys. Tilting melters are available in either round top style or rectangular.

Round top tilting melters allow for rapid charging with clamshell style charge buckets. ANDRITZ has provided tilting round top melters up to 130,000 lb. (60 MT) and as small as 66,000 lbs (30 MT) capacities. Rectangular tilting melters provide the economical advantage of a tilting melter in cast houses that may not have the headroom for loading with a scrap bucket or without the high production cycle time of a round top. Either way, ANDRITZ has the solution for your cast house needs.



A Tilting Round Top Melter



B Tilting Rectangular Melter 165,000 lbs (75 MT) capacity

Tilting Holding Furnaces

VERY ROBUST CONSTRUCTION WITH TILTING DESIGNS AVAILABLE UP TO 140 TON MOLTEN METAL CAPACITY

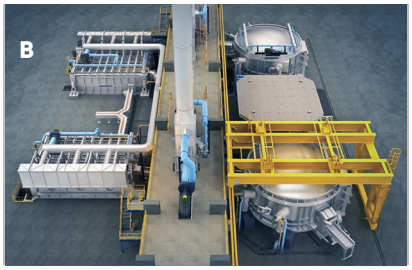
The essential purpose of the holding furnace is to accept molten metal from its corresponding melting furnace and to deliver uniformly heated metal to the casting operation.

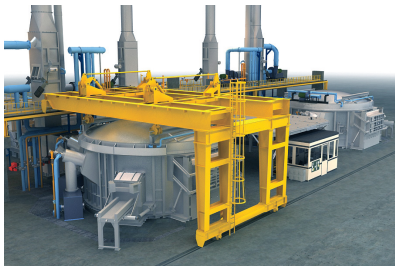
For this purpose metal is delivered to the caster launder system by tilting the holding furnace. ANDRITZ Metals USA utilizes two large hydraulic cylinders. The tilt is regulated to maintain a tight launder level with the proprietary ANDRITZ simple precise DMP hydraulic control system without the need for hydraulic proportional valves. This is especially important when the mold table level for billets is controlled by the furnace. The DMP tilt system is also user friendly to ensure the system will work for years to come with minimum problems.

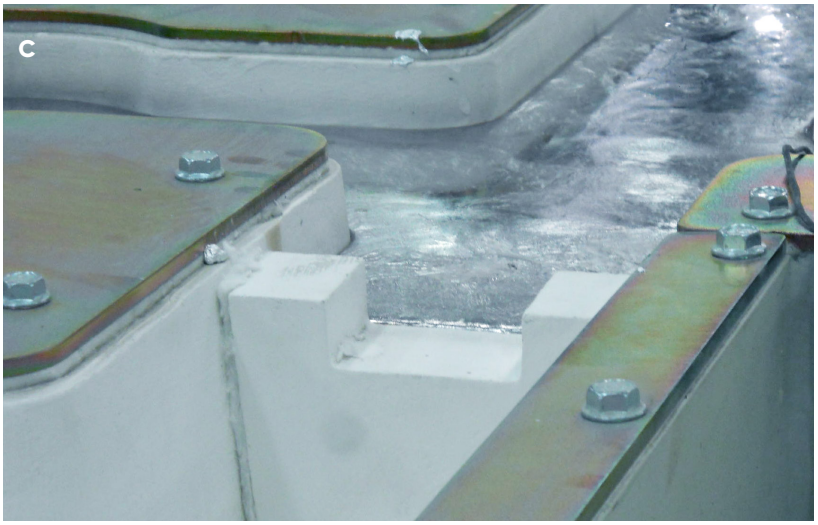
Maintaining temperature during the casting process ensures the uniformity and quality of the aluminum cast product especially when casting hard alloys. Refractory design to minimize bath temperature stratification is also crucial. Precise level and temperature controls on ANDRITZ tilting holders have allowed our customers´ products to attain the world's largest ingots and billets and obtain hard alloy material qualifications from large aircraft manufacturers.

Our experience in the aluminum industry has allowed us to work closely with other equipment suppliers and understand their operation requirements from the in-furnace metal refiners to the caster suppliers which helps to provide seamless startups and reliable operation.

From 30,000 lbs (15 MT) to 310,000 lbs (140 MT), whether DC cast or continuous casting, ANDRITZ can provide the exact holder for your needs.







A Typical tilting of a holding furnace to ensure uniform flow to the casting machine
B Melter and holder casting cell utilizing 3D design tools help our engineers and plant operators to develop, understand, and discuss the layout before any soil is broken
C It can be seen that the metal level is actually above the mold overflow dam with only the meniscus holding the aluminum from overflowing

Pusher Type Furnaces

FOR HEATING AND HOMOGENIZING ALUMINUM INGOTS FOR HOT ROLLING

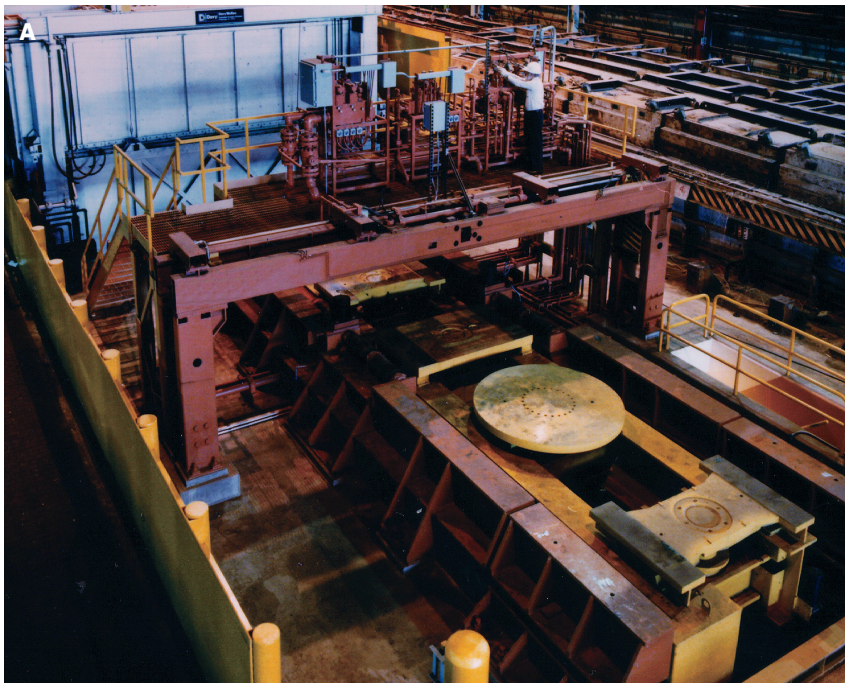
ANDRITZ Metals USA offers a range of furnaces to reheat or homogenize aluminum ingots prior to hot rolling.

Reheating and homogenizing is carried out in a step-continuous process for high production volumes.

Several airflow desgins are offered and each are designed to suit the customer's specific ingot thickness range and market segment. In addition to the normal traverse nozzle design optimized for a normal ingot thickness range, ANDRITZ Metals Inc. has special designs available which are capable of heating a very wide range of ingot thicknesses efficiently.

Tight temperature tolerances of ±3°C throughout the load are easily obtained with our airflow systems. Our airflow systems use high performance fan units; thus, making our furnaces fit for the requirements of the automotive and aerospace industry.

Material handling systems are of equal importance in pusher type furnace installations. Our handling systems are designed to prevent damage to the ingot rolling surfaces. All handling configurations are custom designed.



A Pusher shoe furnace for heating ingots
B Typical shoe return system

Pit and Car Bottom Furnaces

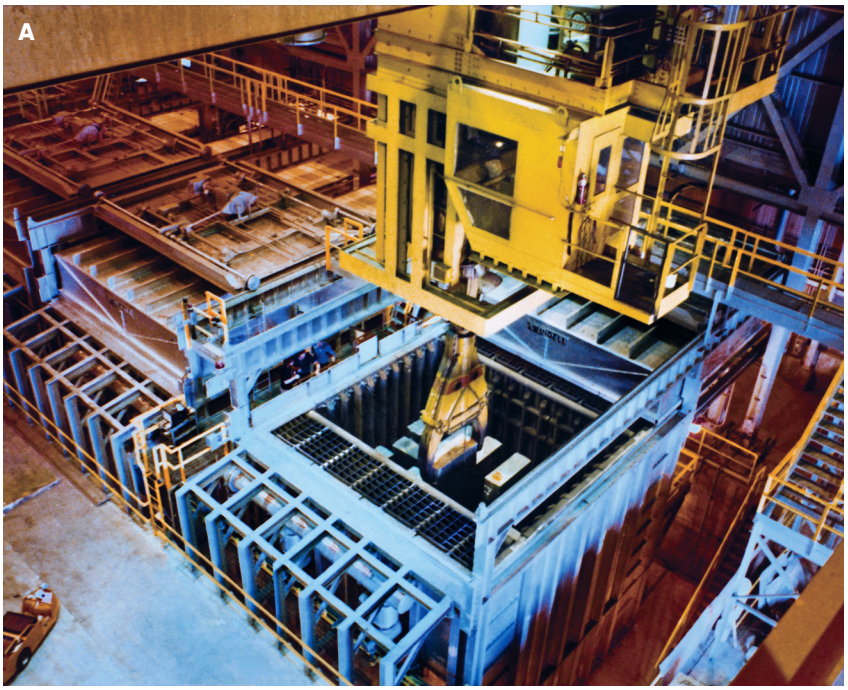
SOLUTION FOR ULTIMATE PRODUCTION FLEXIBILITY AND IDEAL FOR SMALL BATCH OPERATION

Pit and car bottom furnaces are used to reheat or homogenize aluminum ingots in relatively small batches and provide the ideal solution where production flexibility is of paramount importance.

These furnaces provide a very economical solution for our customers' production needs. Both furnace types feature powerful air circulation systems and fuel-fired or electrical resistance heating strategies.

Our pit furnaces feature elevated hearth structures for optimal airflow around the ingots. Unidirectional or reversing airflow patterns can be specified and have been the traditional furnace type used for small batch operation with approximately 400 units installed.

A cost-conscious alternative solution to a pusher type furnace can be a batch type car bottom furnace. Precise temperature control is established in this type of furnace through indirect heating and air circulation.



A Soaking pit utilized for large coils or ingots
B Car bottom ingot heating furnace

ANDRITZ METALS

ANDRITZ Metals Processing is a global leader in providing cutting-edge solutions for the production and processing of cold-rolled strip made of carbon steel, stainless steel, aluminum, and other non-ferrous metals. Our innovative technologies and comprehensive services ensure that we support our customers at every stage of the plant life cycle, from initial setup to ongoing maintenance and optimization.

We combine our deep industry expertise with advanced automation and digitalization to help our customers achieve peak performance and sustainable growth. Our service business is dedicated to maximizing the efficiency and longevity of your equipment, ensuring you stay ahead in a competitive market.

ANDRITZ. FOR GROWTH THAT MATTERS.

NORTH AMERICA
ANDRITZ Metals USA Inc.
p: +1 724 746 2300
metals.usa@andritz.com

CHINA
ANDRITZ (China) Ltd.
p: +86 10 6561 3588
metals.cn@andritz.com

ANDRITZ.COM/METALS

JOIN US ON SOCIAL MEDIA

All data, information, statements, photographs and graphic illustrations in this leaflet are without any obligation and raise no liabilities to or form part of any sales contracts of ANDRITZ AG or any affiliates for equipment and/or systems referred to herein. © ANDRITZ AG 2024. All rights reserved. No part of this copyrighted work may be reproduced, modified or distributed in any form or by any means, or stored in any database or retrieval system, without the prior written permission of ANDRITZ AG or its affiliates. Any such unauthorized use for any purpose is a violation of the relevant copyright laws. ANDRITZ AG, Stattegger Strasse 18, 8045 Graz, Austria. ME.Aluminum furnaces/07.2025 EN