



INGOT PREHEATING AND HOMOGENIZING

SECO/WARWICK provides custom engineered aluminium ingot preheating and homogenizing furnaces, including pusher, soaking pit and car bottom designs. SECO/WARWICK's long experience with ingot preheat furnaces assures the optimal heat input, air recirculation and furnace efficiency to meet the most demanding specifications. Fast heat-up rates have been obtained without compromising load uniformity or thermal efficiency.

● Furnace Temperature Control System and Airflow Design

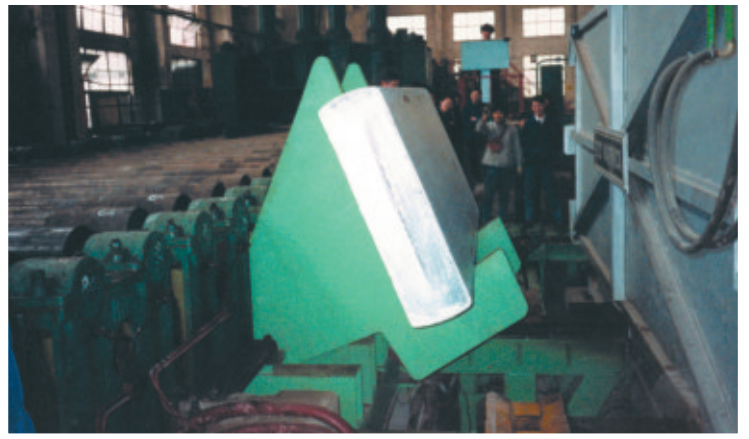
Whether ingot furnaces are designed with reversing cross flow or vertical upflow, SECO/WARWICK's furnace temperature control system using heat head and air-to-work ratio with probe thermocouples, prevents overheating the load. This control system can be used with all ingot furnace configurations. Temperature monitoring and heat input can be accomplished through conventional instrumentation, microprocessor-based instruments or programmable logic controllers.

● Insulation System

To maximize efficiency and reduce overall Btu per pound requirements for ingot preheating, SECO/WARWICK uses an insulation system that has improved thermal characteristics, lower initial cost and reduced maintenance time. Our proprietary lining system starts with several inches of board-type insulation covered by a ceramic fiber blanket. A stainless steel wire mesh covers the entire insulating surface and is coated with a high-temperature mortar, which provides a rigid surface. If insulation damage does occur, it is much easier to repair than stainless steel liner sheets.

● Combustion Efficiency

With the addition of burner recuperators, combustion efficiency can be improved to provide maximum fuel utilization.



Discharge end with ingot down-ender and mill roll table



Ingot shoe assembly and positioner



Car bottom ingot soaking for billet heating

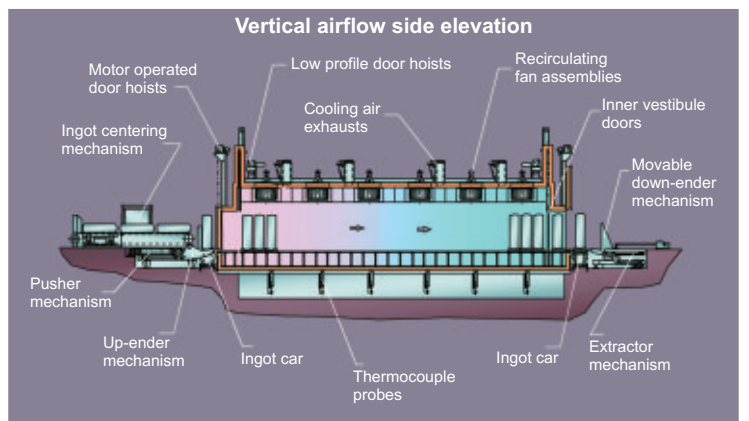
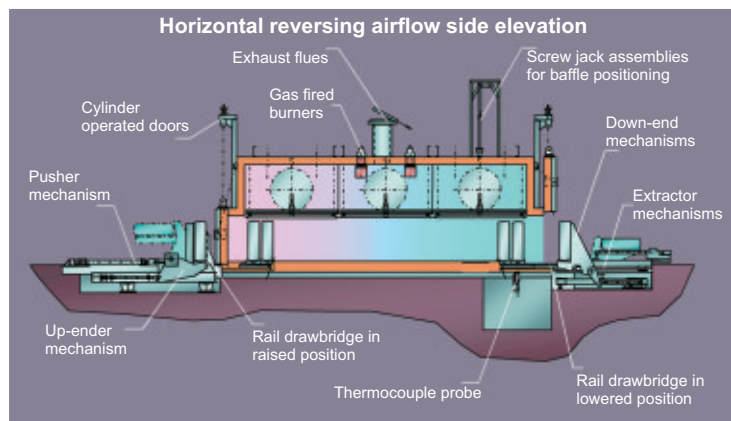
Material Handling Systems

An integral part of any type of ingot preheating operation is the ingot material handling system that brings the ingot to the furnace and delivers it from the furnace to the rolling mill. SECO/WARWICK has designed, built and installed pusher-type ingot furnaces that operate with either a single or double row of ingots. The ingots stand on edge in "shoes" as they move through the furnace. Hydraulic cylinder-operated pusher heads advance the shoes. At the charge end, an up-ender rotates the ingots 90° from a flat to an edgewise position. At the discharge end, an extractor removes the ingot from the furnace by pulling on the shoes. A down-ender then rotates the ingots 90° into position on the mill table. Roller conveyors or monorail systems return the shoes to the charge end of the furnace for reloading.

Other types of ingot material handling systems make use of cranes or manipulators. Whatever the choice, SECO/WARWICK has the engineering capability to design the material handling system that meets the customer's facility limitations and process requirements. SECO/WARWICK soaking pit and car-type ingot furnaces can operate separately or with material handling systems built by SECO/WARWICK or other manufacturers.

Our Commitment

As specifications continue to tighten on aluminium end products, so do the requirements for the performance of ingot heating furnaces. Through our many years of experience and commitment to ongoing research, SECO/WARWICK will continue to be a leading and innovative manufacturer of ingot furnaces.



Vertical and horizontal airflow designs are available

SECO/WARWICK S.A.
ul. Sobieskiego 8
66-200 Świebodzin,
Poland
Tel. +48/68 3820 501
Fax +48/68 3820 555
info@secowarwick.com.pl
www.secowarwick.com.pl

ELTERMA S.A.
ul. Świerczewskiego 76
66-200 Świebodzin,
Poland
Tel. +48/68 3819 800
Fax +48/68 3819 805
elterma@elterma.com.pl
www.elterma.com.pl

SECO/WARWICK Corp.
180 Mercer St., P. O. Box 908
Meadville, PA 16335
USA
Tel. +1 814 332 8400
Fax +1 814 724 1407
info@secowarwick.com
www.secowarwick.com

SECO/WARWICK MOSCOW
Warszawskie Shosse, 17
117105 Moscow,
Russia
Tel/Fax +7(495)786 39 44
moscow@secowarwick.com.pl
www.secowarwick.com.pl

SECO/WARWICK CHINA
Industrial Furnace Co. Ltd.
Beisunzhuang Village,
Jinwei Road,
Beichen District, Tianjin,
China 300402
Tel. +86 22 86853179
Fax +86 22 86850027
info@secowarwick.com.cn
www.secowarwick.com.cn

The latest design, materials and equipment specifications should be obtained from the company before any reliance is placed on the enclosed since changes may occur due to product improvement.