



## Steel Reheat Furnaces

SECO/WARWICK steel reheat furnaces have capacities up to 120 tons per hour and may be configured as roller hearth, rotary hearth, pusher, walking hearth or walking beam for billets, ingots, blooms and slabs.

These furnaces can process ferrous, non-ferrous, alloy and stainless steel products. Each furnace installation can be configured with a number of different control and firing methods to achieve the highest quality product.

### Combustion Systems

Longitudinal or side fired zones with either traditional modulated fuel/air ratio, more modern on/off burner control or a combination of these can be applied to these furnaces. Furnaces are typically equipped with low-emission burners.

Low-NOx burners are used to offset the emissions created when using preheated air. One important aspect of reducing emissions is the elimination of air infiltration by using properly designed furnace pressure control. This also helps to reduce scale and contributes to overall reheat furnace system efficiency.



Figure 1 - Preheated top zone burners

### Walking Beam Furnace

The walking beam furnace is designed to heat the product from all sides. Because of this, the furnace produces very uniform product temperatures. The product travels through the furnace by using a combination of walking and stationary beams.

The walking beam will lift the product and move it forward. Then the product is lowered onto the stationary beams. While the load is resting on the stationary beams, the walking beam moves underneath the product back to the home position ready to perform another walk.



**Figure 2 - Internal view of walking hearth furnace**

### **Walking Hearth Furnaces**

Similar to the walking beam furnace, this furnace can provide a uniform heating of the product. This furnace is heated from above the load and is more suitable for thinner product sizes. Portions of the refractory-lined hearth are used to raise the product and move it toward the discharge in a walking fashion.

Both walking beam and walking hearth furnaces provide the owner the ability to completely empty the furnace without the use of auxiliary equipment. This is very useful during maintenance outages, saving valuable time.

### **Pusher Furnaces**

The products reheated by today's pusher furnace include slabs, billets and blooms. Each piece is pushed through the furnace by the next piece. Pusher arms are used to push the first piece. These furnaces can be designed with a solid soak hearth to provide temperature uniformity to the product. However, some designs have an under-fired soak zone. Offset skids are often used to reduce the effects of the water-cooled skids.

### **Roller Hearth Furnace**

A roller hearth conveyor system consists of a series of externally driven rolls. There are no cumulative conveyor pressures or tensions as in belt, chain or pusher furnaces. As a result, there are no production or cycle limitations and the length of the furnace is dependent only upon your application needs. Individual operation of the roll sections permits continuous or interrupted work flow.

Individual roll sections can be started, stopped, reversed or oscillated; they can be run at the same or at different speeds. This permits an operating furnace that produces your required cycle in a minimum amount of space. High-speed transfer between sections allows closely spaced work loads or work trays (with separation during transfer through doors), assures optimum use of hearth space and minimizes atmosphere mixing.



## Product Bulletin

### Rotary Hearth Furnaces

For reheating of blooms or for forging operations, the rotary furnace is a useful furnace. This furnace provides effective heating in a relatively small area. Charge and discharge positions are normally near each other. These furnaces can also be designed for heat treating applications as well as the higher-temperature reheat process.



### Controls

A wide range of control systems can be custom engineered to suit each application. Hardwired control panels, PLCs and PCs are often used to provide customers with safe, reliable operation of the equipment.

Effective use of level I controls coupled with level II control is available to coordinate the material handling controller and process controller to ensure the highest level of efficiency through all production levels. A level II system, when fully automatic, will adjust the zone set points to compensate an ever-changing production demand. The result is a fully automated system that self-corrects for changes in slab thickness and width and compensates for planned or unplanned delays.

### Industrial Services

A wide range of services are available for reheat furnaces. These include rebuild projects, field service, spare parts, equipment supply, control and combustion upgrades, and fabrication services. As a result of these services, we have provided our customers improved performance, lower emissions, better efficiency and enhanced product temperature uniformity.

### About SECO/WARWICK

The SECO/WARWICK Group is one of the world's leading manufacturers of heat treatment furnaces and a technology leader. With our fully equipped research and development facility and cooperation with the leading academic centers in Europe, we are able to provide innovative solutions not offered anywhere else in the world.

The Group is made up of companies located in five countries on three continents, and we sell our products in 45 countries around the world. We supply furnaces to customers involved with steel, titanium and aluminum production as well as aluminum recycling, forging, automotive, aerospace, commercial heat treating, HVAC/R, electronics, wind energy, medical equipment and nuclear industries. Visit our website for more information.

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