



## Case Study

# Roller Hearth Furnace System for the heating, reheating and air annealing of hot rolled materials

SECO/WARWICK has partnered with Westinghouse Electric Company LLC Western Zirconium Plant, to increase the production capability of their Ogden, Utah facility. The Western Zirconium plant produces zirconium, hafnium and zircaloy for commercial nuclear power plant and other industrial applications.

### Application

Prior to purchasing new equipment, Westinghouse used a roller hearth, hot mill and shear for hot rolling zirconium slabs, plates and sheets to various thicknesses for further processing into final zirconium flat products. The purpose of the new project was to increase the production capability for heating, reheating and air annealing of hot rolled materials. The equipment control system and material handling systems provided a level of automation to maintain production with little human intervention.

### Project Description

The furnace has the capacity to process slabs and plates of various sizes when heated and equalized at specific temperatures. The furnace uses specific technology that ensures even heating across the load and limits warping.

SECO/WARWICK custom engineered a system to increase production and reduce cycle time that meets NFPA specifications 70, 79 and 86 and a temperature uniformity requirement of +/- 15 degrees C. The maximum furnace temperature is 850 degrees C.



Figure 1-Overview of system



Figure 2 - Return conveyor



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The scope of supply included a jib crane, loading table, oscillating roller hearth furnace with electrical resistive heating elements, exit table incorporating a cross transfer conveyor system, return conveyor, 1600 amp motor control center, 360 KW SCR, PLC and HMI panels with 6 operator systems.



Figure 3 - Roller Hearth furnace system for heating, reheating and air annealing

*The SECO/WARWICK Group provides industrial metal heat treatment furnaces used in a variety of processes for material finishing and component manufacturing applications. 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.*

The SECO/WARWICK Group produces vacuum furnaces, atmosphere furnaces, controlled atmosphere aluminum brazing furnaces (CAB), aluminum process furnaces and vacuum metallurgy equipment in manufacturing sites in Poland (SECO/WARWICK Europe), the United States (SECO/WARWICK Corp., RETECH Systems LLC), India (SECO/WARWICK Allied Ltd.), China (SECO/WARWICK RETECH Mfg. Tianjin Co., Ltd.) and Brazil (SECO/WARWICK do Brasil Ltda.). Sales, service & spare parts offices in Germany (SECO/WARWICK Services GmbH) and Russia (SECO/WARWICK Russia) complete the worldwide customer care network. Visit our website below for more information.