



ADDRESS SECO/WARWICK GROUP

- **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**
Warszawskoje 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

**SOLUTION HEAT TREAT
FURNACE SYSTEMS**

www.secowarwick.com.pl
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● SECO/WARWICK is a world leader and innovative manufacturer of Solution Heat Treat Furnace Systems with decades of experience. We provide the complete solution to your needs for a custom designed system. Many factors contribute to the overall efficiency of SECO/WARWICK's solution heat treating systems. Convection heating using high velocity air distributes heat evenly and efficiently, producing close temperature uniformity. Our time-tested insulation system further enhances efficiency, and has proven to be one of the most durable linings on the market today. A variety of circulated airflow patterns add further efficiencies to our furnace designs.

● **Capabilities**

Our design engineers work closely with your engineering and production staff to ensure optimum performance for your complete furnace system and overall plant operations. We offer complete turnkey capabilities for each project including:

- Foundation Outline
- Solution Heat Treat Furnaces
- Aging Ovens
- Load Handling Systems
- Control Systems
- Automated Product Tracking
- Installation
- Start-up and Testing
- Training

● **Designed to Fit the Application**

SECO/WARWICK uses various designs for recirculating airflow using axial and centrifugal style fans designed specifically for your application, including:

We offer the finest quality melt equipment in the industry:

- Horizontal reversing cross flow
- Longitudinal airflow (or tunnel flow). The recirculated air travels down the length of the furnace or zone of control. This is ideal for mass production of aluminium parts in baskets or on racks.
- Vertical airflow (either upward or downward) is generally used for baskets of small aluminium castings or forgings.

● Selecting the proper airflow is dictated by the density and configuration of the load, desired production rate, available floor space, required heating times and temperature uniformity, transport method (if continuous) or load support (if batch), heating method, etc. ANSYS analytical software can be used to evaluate the heating rate of the load prior to selecting the most efficient airflow method. Actual load testing capabilities are available to confirm the theoretical results. Following heat treatment, load cooling is critical to achieving acceptable metallurgical results. SECO/WARWICK has experience with many different cooling systems. Choices include mobile or stationary dunk type quenches, elevator type quenching or spray systems. Optional quenching features include motor-driven mixers, heat exchangers, immersion elements and indirect fired heaters.

● **Continuous Roller Hearth Furnaces**

These high efficiency furnaces provide a competitive edge to producers of aircraft and automotive components, while meeting the most rigid cost and production specifications. Production rates in excess of 16,000 pounds per hour have been obtained in our continuous furnaces.

Continuous furnaces provide flexibility for a wide range of products. By using variable speed drives, the residence time and soak time can be increased or decreased to meet your specific needs.

SECO/WARWICK's unique system of separating the heat and soak chambers with internal doors provides unmatched flexibility and temperature control. By incorporating a discharge chamber, you can unload the furnace without affecting the temperature uniformity of the remaining work pieces. High-speed mechanisms quickly transfer the work to the quench medium.

● **Control Systems**

Control systems supplied with the furnace line will typically include a programmable controller and a personal computer for automatic operation. The process software is written by SECO/WARWICK engineers familiar with solution heat treat processes and load handling requirements. Equipment operation and status can be viewed from our corporate headquarters in Meadville, PA with instant on-line assistance capability.

● **Plant Support**

We offer equipment layout recommendations aimed at economizing space, manpower and operations. To ensure immediate, accurate performance, SECO/WARWICK mechanically and electrically tests each furnace in our facility prior to shipment, unless size prohibits assembly prior to shipment.

● **Quality Commitment**

SECO/WARWICK builds solution heat treating furnace systems for aluminium castings, aluminium plate, aluminium forgings, aluminium extrusions, aircraft applications and billet preheating. With our experience and turnkey capabilities, we will continue to be a world leader and innovative manufacturer of solution heat treating furnace systems. SECO/WARWICK is your complete supplier of heat treating and aging furnace systems.



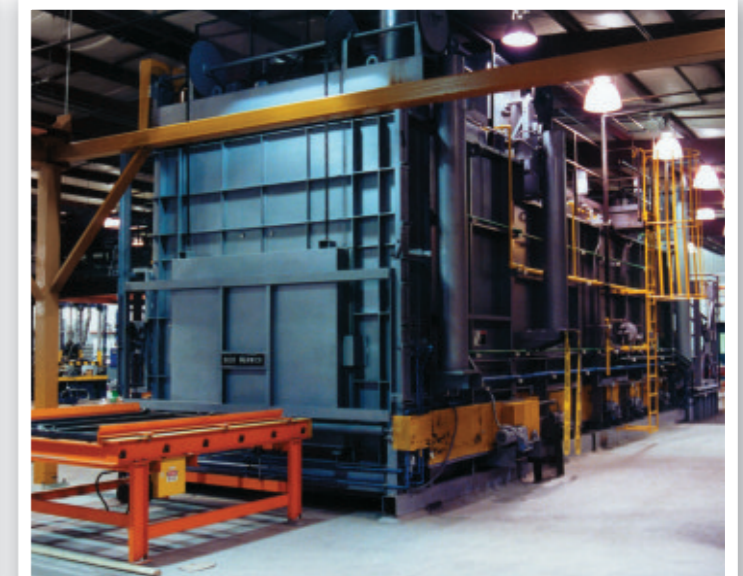
Fully automated solution heat treat and aging system for automotive wheels



Solution Heat Treat Furnace with Spray Quenching for aluminum extrusions



Solution heat treat furnace and age oven system for aluminum differential carrier castings



Solution heat treat furnace, front view