



SECO/WARWICK

INVENTION MEETS RELIABILITY

PROFESSIONAL SERVICES

A new dimension of heat treatment equipment support



REPAIRS MODERNIZATIONS of metal heat treatment equipment

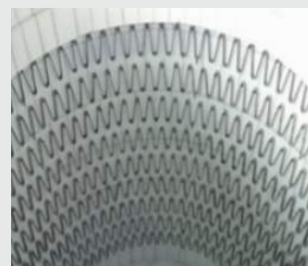


EXPERIENCE

SECO/WARWICK's many years of experience provides the expertise to support our client's maintenance and repair challenges including:

- Insulation replacement in atmospheric and vacuum furnaces,
- Delivery of modern heating and recuperation systems,
- Modernization of existing and replacement control systems, complete with up-to-date technology,
- Equipment adaptation to current standards and directives, including: CE, AMS2750, CQI-9, NADCAP,
- Cooling system modernization and expansion,
- Relocation of individual furnaces/equipment and entire technological lines,
- Delivery of transportation system parts and assemblies.

Comprehensive modernizations and repairs for all types of furnaces, not only those made by the SECO/WARWICK Group.



PRODUCTION COST REDUCTION - equipment modernization



SAVINGS

Energy consumption is a significant cost for commercial heat treaters, which affects the production profitability, and the product or service price competitiveness.

SECO/WARWICK offers services to reduce production costs by:

- Working parameter optimization,
- Heat loss reduction,
- Minimizing gas consumption.

Work parameter optimization

of complete equipment operation as well as individual subassemblies, thanks to a control system modernization that conserves energy by enhancing motor control in the start-up phase, adapted to current need

Heat loss reduction

by replacing the insulation with the latest insulating materials.

Reducing gas consumption

after heating system modernization and equipping it with recuperation elements.



HEATING CHAMBER REPLACEMENT in vacuum furnaces with graphite or specialty metal insulation

In vacuum heat treatment furnaces, the heating chamber plays an important role and is thought of as the heart of the whole furnace. Improper use or wear over time can contribute to a decrease in efficiency, and in a critical situation, furnace failure and stoppage. The chamber is ideally designed for renovation or replacement in case of wear, thus increasing the service life of the furnace.



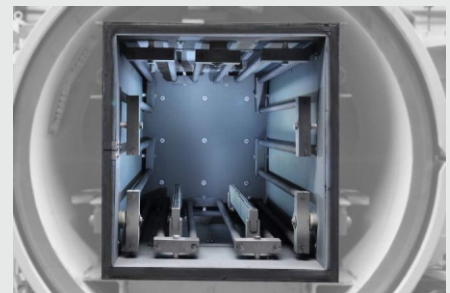
QUALITY

- The replacement project undergoes a **comprehensive process** from an accurate measurement phase, through production in our plant, transportation, and start-up at the destination.
- The new chamber assembly is delivered complete with **temperature uniformity testing** in accordance with the customer's standards and guidelines.
- We **minimize downtime** by executing the chamber entirely in-house, limiting the replacement time to removing the old chamber from the furnace, installing the new chamber, and performing all tests.

We guarantee:

- Temperature uniformity test results,
- Heat loss reduction,
- The chamber's trouble-free operation.

It is possible to manufacture and replace heating chambers from other manufacturers!



MUFFLES for atmospheric furnaces



FEATURES

SECO/WARWICK offers high-quality muffles for belt furnaces.

The replacement muffles are made of many types of materials, ensuring appropriately low stresses, and extended service life.

SECO/WARWICK muffles are characterized by:

- Properly sealed ceiling and shaft joints, guaranteeing correct temperature uniformity,
- Muffle sections are repaired or replaced with high nickel steels, particularly sections that have been exposed to fatigue damage in many years of operation,
- New muffles provide high dimensional stability during use.



RETORTS for PIT furnaces

SECO/WARWICK offers:

- Various types of retorts for pit furnaces,
- Execution of large diameters and heights,
- Constructions adapted to operate with bellows and with an oil seal,
- Execution of open or closed retort versions,
- Utilization of several-stage sheet thickness, resulting in long service life,
- Constructions that guarantee minimal deformations during utilization time.



SPARE PARTS

SECO/WARWICK service means access to a wide range of spare parts and a high standard of quality.

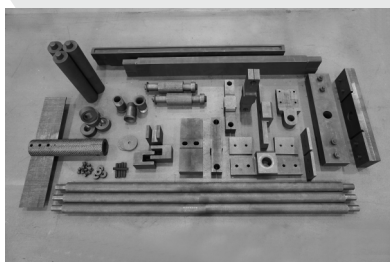
Heating elements



Ceramic elements



Graphite elements



**Thermocouples, Sensors,
Oxygen probes**



Heat exchangers



Rotors



**Loading trays
(casted, CFC, molybdenum, inconel)**



Consumables in melting processes



COMPREHENSIVE SERVICE of heat treatment equipment

SECO/WARWICK provides comprehensive technical support for your heat treatment equipment, including service inspections and ongoing technical support under Service Agreements.



SERVICE INSPECTIONS

SECO/WARWICK Service performs ad hoc and regular preventive service inspections.

The inspection may include, among others:

- Leak testing vacuum furnaces, and checking the integrity gas and air installations,
- Inspection of atmospheric and vacuum furnace chambers as well as control and measurement equipment,
- Temperature uniformity tests in accordance with applicable standards.



SERVICE SUPPORT

SECO/WARWICK is more than a repair in the event of a failure.

We understand furnaces, we combine knowledge and experience, and for our engineers' team the furnace manufacturer is not important.

We provide support in repairs, modernizations and relocations, we carry out preventive inspections and preventive actions resulting from them.





SECO/WARWICK **Is your first-choice** **professional technical service supplier**

We know how important it is to maintain production continuity. We take responsibility for your equipment operation, leaving you time for strategic planning. Equipment service in case of a failure is the worst-case scenario, unexpected, surprising, and always at the wrong time. We are a reliable partner in these situations.

Our goal is to increase the operational reliability of your furnaces by offering comprehensive service support.

The SECO/WARWICK's team of service engineers has the knowledge and experience to manage the heat treatment machine park in a planned and professional manner, regardless of the furnace manufacturer. The solutions we offer are universal, as they are based on the best practices in prevention.

SECO/WARWICK's professional technical service is more than a repair in the event of a breakdown, we offer a partnership to keep your equipment in efficient operation.

We understand furnaces, we increase their availability using automated maintenance processes. We provide design and technological support for repairs, modernizations and relocations. We carry out preventive inspections and offer precautionary actions along with advanced tools for measurement and reporting.

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