



**SECO/WARWICK**

INVENTION MEETS RELIABILITY

# CaseMaster Evolution - T

Continuous vacuum furnaces for economic and high volume heat treatment and brazing



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Continuous vacuum furnaces for economic and high volume heat treatment and brazing



## INDUSTRIES

- / Gears & Transmission
- / Automotive
- / Aviation
- / Heat exchanger
- / Bearing
- / Machine-building
- / Commercial Heat Treatment



## TECHNOLOGIES

- / Case Hardening (LPC)
- / Quenching
- / Brazing
- / Annealing

CaseMaster Evolution - T - three chambers vacuum furnaces for a variety of technologies. This solution provides maximum flexibility in heat treating and continuous batch processing. With dozens of CMe vacuum heat treating furnaces installations, SECO/WARWICK is perceived as an expert at this vacuum technology.

CMe brings the best operating performance and enable the heat treatment of many different materials. This is the key factor when selecting furnace to be used in e.g. commercial and in-house plants. Combined with low process costs, shorter cycles, higher output and precise control over the process, they make the heat treatment made in SECO/WARWICK highly competitive.

The family of CaseMaster Evolution "CMe" vacuum furnaces is dedicated for batch and semi-continuous case hardening by low pressure carburizing LPC® and oil or gas quenching as well as for through hardening and brazing as a wide attractive alternative for atmospheric sealed quench furnaces, continuous lines and multi-chambers systems.

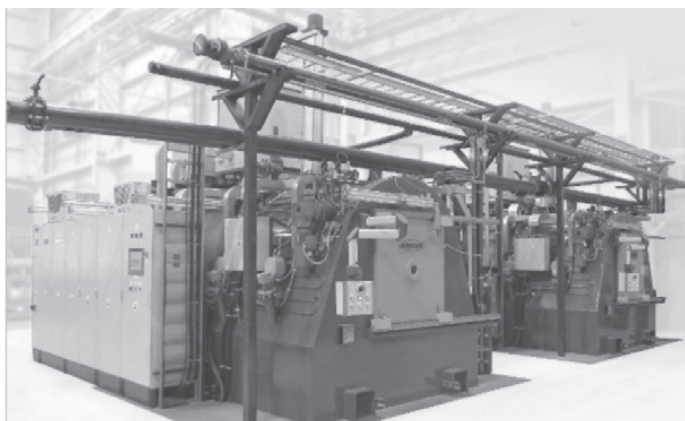


## FEATURES

The CMe-T is a triple-chamber furnace equipped with a loading/pre-heating chamber (1) at a loading side, a heating/process chamber (2) and a oil or high pressure gas quenching chamber (3), separated from each other and ambient conditions. It works in semi-continuous mode, loaded from one side and unload from another. The furnace treats 3 loads at the same time in a very efficient way.

All these result in significant increases in a furnace throughput, as much as twice or even triple times comparing to single- or double-chamber furnaces.

- / Fully automated processing.
- / Vacuum, horizontal, triple-chamber.
- / Graphite heating chamber.
- / Low heat losses by increased thermal insulation.
- / Low pressure carburizing (LPC).
- / Oil or high pressure gas quenching, nitrogen (N<sub>2</sub>) or helium (He) 24 bar.
- / Vacuum and pressure tight inner doors ensure high purity of process and parts.

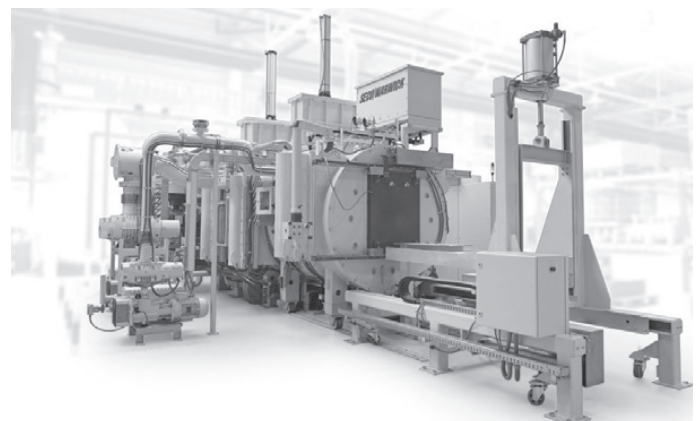


- / Short workload-transport time within the furnace.
- / Shorter evacuation times by independent pumping systems for each chamber.
- / Uniform quenching and distortion reducing by stepless control of oil circulation system.
- / Compact, modular design.



## BENEFITS

- / Extremely economical and efficient:
  - / 3 times shorter process.
  - / 3 times faster production.
  - / 1/3 process cost.
- / Safe:
  - / Elimination of flammable and explosive atmosphere.
  - / Elimination of open flame.
  - / Elimination of an atmosphere generator.
  - / Elimination of fire and explosion risk.
- / Excellent carburizing uniformity (LPC).
- / Uniform carburizing of densely packed load and difficult geometrically parts.
- / Highly accurate and precise LPC process simulator (SimVaC).
- / No intergranular oxidation (IGO) and decarburization.
- / Reduce distortion by 24 bar N<sub>2</sub> or He quenching.
- / Full operational flexibility, on demand operation, immediate start/stop.
- / Elimination of time waste for atmosphere conditioning.
- / No CO/CO<sub>2</sub> emission.
- / Clean, environmentally friendly process.



## SECO/WARWICK Invention Meets Reliability

SECO/WARWICK is the 1<sup>st</sup> choice supplier  
of solutions for heat treatment and metallurgy.

We create innovative products that provide our customers with reliable, safe and environmentally friendly solutions for heat treatment and metallurgy and ensure the economic efficiency of their businesses. Expertise includes end-to-end solutions in 5 categories: vacuum heat treatment, atmosphere, and aluminum thermal processing, controlled atmosphere brazing of aluminum heat exchangers and vacuum metallurgy.

SECO/WARWICK Group, with 8 companies located on 3 continents, has customers in nearly 70 countries with more than 4000 deployed solutions. The company provides standard or customized state-of-the-art heat processing and metallurgy equipment and technologies to leading companies in the following industries: automotive, aerospace, electronics, tooling, medical, recycling, energy including nuclear, wind, oil, gas, solar and production of steel, titanium, and aluminum.

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