

SECO/WARWICK GROUP
a leading global manufacturer
of heat treatment furnaces and equipment

SECO/WARWICK is a technological leader in innovative heat treatment furnaces. 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 9 companies located on 3 continents with customers in nearly 70 countries, has its production facilities in Poland and China. In addition, the Group operates a number of service and sales offices in countries such as Germany or Russia. The company provides standard or customized state-of-the-art heat processing 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.



Cost-efficient and continuous production

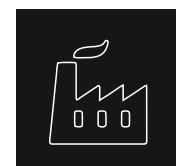
CMe® - Triple CASEMASTER EVOLUTION

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

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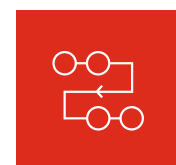
Continuous vacuum furnaces for economic and high volume heat treatment and brazing

INDUSTRIES:



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

TECHNOLOGIES:



Case Hardening (LPC)
Quenching - Brazing
Annealing

CaseMaster Evolution CMe®-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.

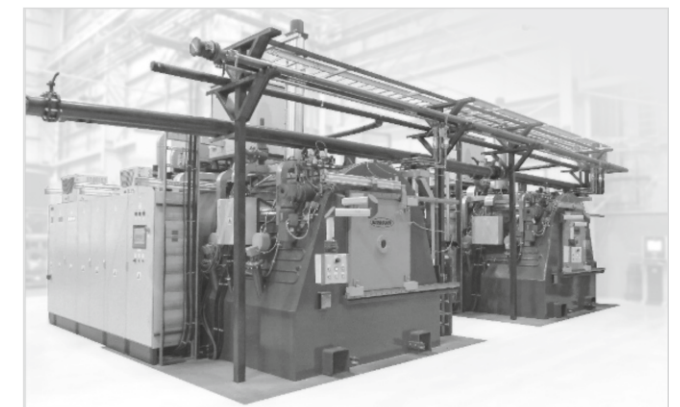
All these result in significant increases in a furnace throughput, as much as twice or even triple times comparing to single- or double-chamber furnaces.

- 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 (N₂) 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

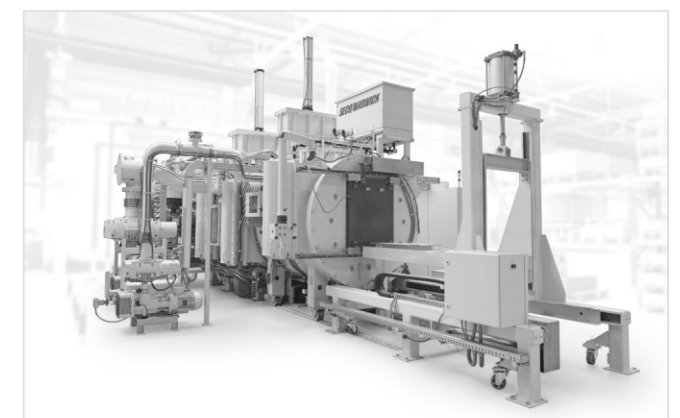


BENEFITS

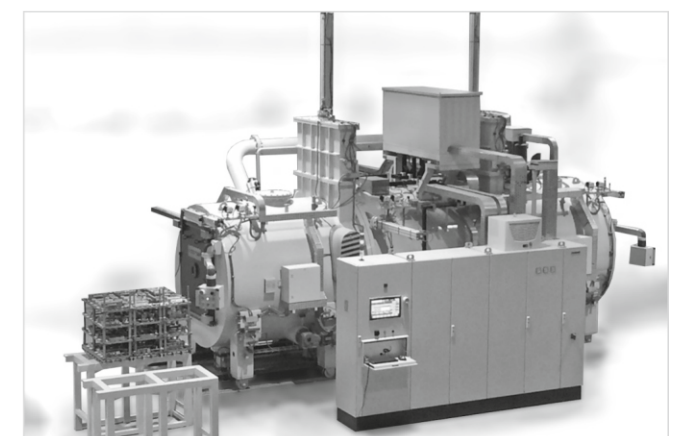
- Extremely economical and efficient
 - 3 times shorter process
 - 3 times faster production
 - 1/3 process cost
- Safe
 - Elimination of flammable and explosive atmosphere
 - Elimination of open flame
 - Elimination of an atmosphere generator
 - Elimination of fire and explosion risk
- Excellent carburizing uniformity (LPC)
 - Uniform carburizing of densely packed load and difficult geometrical parts
- Highly accurate and precise LPC process simulator (SimVaC)
- No intergranular oxidation (IGO) and decarburization
- Reduce distortion by 24 bar N₂ or He quenching
- Full operational flexibility, on demand operation, immediate start/stop
- Elimination of time waste for atmosphere conditioning
- No CO/CO₂ emission
- Clean, environmentally friendly process



Case hardening by LPC and oil quenching
Capacity: 1500 kg, 900x900x1200 mm (WHL)
Throughput: 500 kg/h



Case hardening by LPC and 24 bar nitrogen quenching
Capacity: 1000 kg, 600x750x1000 mm (WHL)
Throughput: 300 kg/h



Brazing of stainless steel
Capacity: 1200 kg, 900x900x1200 mm (WHL)
Throughput: 300 kg/h