SECO/VACUUM
The North American Vacuum Furnace Company

CaseMaster Evolution Vacuum Furnace

CASEMASTER EVOLUTION®

CaseMaster Evolution, an Advanced Vacuum Furnace with 2 or 3 Chambers for Oil or Gas Quench

The CaseMaster Evolution (CMe) is a state-of-the-art vacuum heat treating system featuring two or three chamber configurations to provide maximum flexibility in heat treating and continuous batch processing. With dozens of CMe oil quench vacuum heat treating furnaces installed, SECO/VACUUM is at the forefront of the international vacuum heat treating market. To increase production capabilities, top global manufacturing companies requiring superior mechanical properties chose the CMe over conventional case hardening methods.

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There are two types of CaseMaster Evolution. The double-chamber furnace (D-Type) provides one chamber for processing and a second chamber for oil or gas quenching. The triple-chamber furnace (T-Type), provides the same chambers as the D type plus a third pre-heating, pre-oxidation chamber that can be used with PreNitLPC® for faster processing. Either configuration can quench with gas or oil. Durable graphite insulation and heating elements provide reliable service in this heavy-duty furnace for industrial applications.

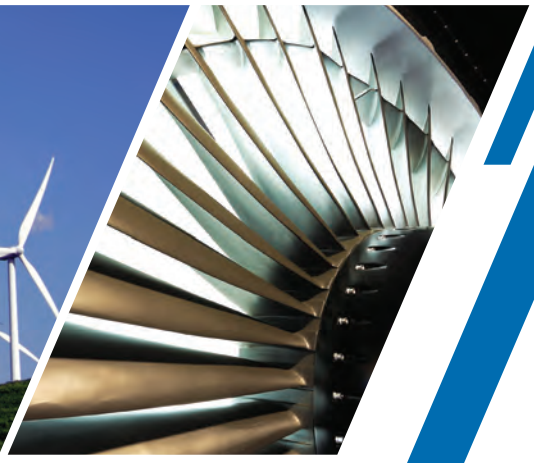
The high-efficiency oil quench has an agitation system that ensures excellent oil penetration throughout the workload which results in uniform and fast workload cooling. The gas system, pump system, power supply and cooling systems are sized to enable a wide range of industrial heat treatment applications.

Processes:

- Hardening with oil quench or gas quench
- Low pressure carburizing using FineCarb® with oil or gas quench
- High-temperature carburizing up to 1920°F (1050°C) using PreNitLPC® for common case hardening steels with oil or gas quench
- Carbonitriding with oil quench
- Bright hardening
- Oxidation in the preheating chamber (T-Type only)
- Tempering

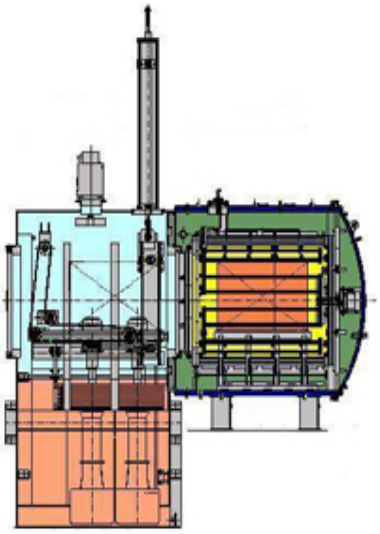
Industries:

- Aviation
- Automotive
- Wind Energy
- Industrial Equipment
- Bearings
- Commercial Heat Treating
- Tool & Die

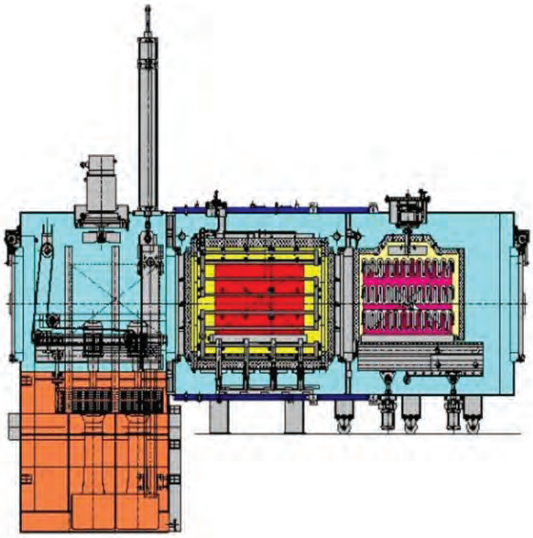


Features:

The CaseMaster Evolution is uniquely positioned to improve efficiency in many heat treating operations by providing multi-chamber capabilities and sealed oil quench and gas quench which open new workflow and process capabilities.



- **D-Type** Double chamber for batch (In & Out) work processing Oil quench or gas cooling/quenching



- **T-Type** Triple chamber for continuous batch work. Oil quench or gas cooling/quenching with a separate chamber for:
  > Pre-heating, pre-oxidation
  > Pre-heating with PreNitLPC® technology

Furnace Options:

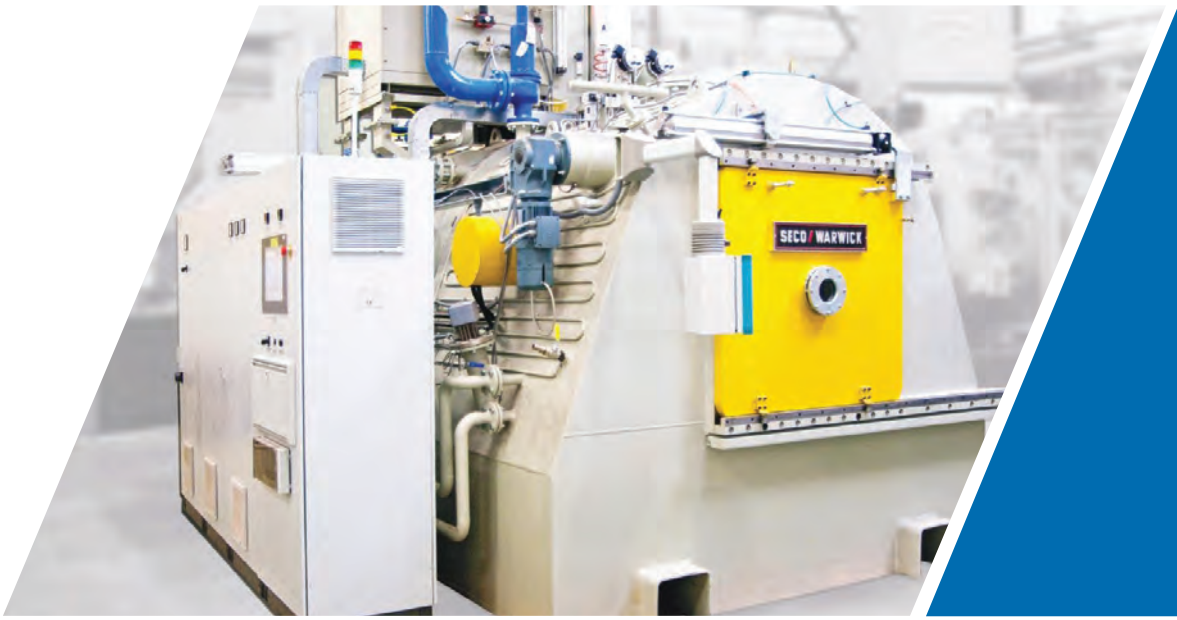
- PreNitLPC®
- FineCarb® with SimVac
- SimCarb
- Hot oil quenching
- 2-bar gas cooling over oil quench
- 2-bar+ high pressure gas quench
- H_2 partial pressure

Auxilliary Equipment:

- High & low tempering furnaces
- Washing machines
- External closed loop water cooling system
- Mobile loading and unloading machines
- Loading trays
- Gas buffer tanks
- Automated loading/multicell
- Cryotemper
- Dry screw pump
- Barcode reader
- Chart recorder

Furnace Benefits and Advantages:

- Heat treatment produces uniform, high quality parts
- High temperature carburizing for typical or special steels
- High-speed & economic processing
- Very low consumption of processing mediums
- Nominal temperature up to 2400°F (1320°C)
- Provides oil and gas quench options
- Reduction and repeatability of distortion
- Process simulators & fully automated processing
- Flexibility, no idling periods, quick start up and shut down
- Meets AMS 2750E, AMS 2759, BAC 5621
- Very short workload-transport time within the furnace
- Compact, modular design
- New oil circulation design to enable maximum uniformity and cooling rate
- Improved carburizing quality and speed using FineCarb® and PreNitLPC®
- Continuous batch processing with 3-chamber (T-Type) models



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