

Furnaces and Accessories for Heat Treatment in Air



Nabertherm offers an extensive range of furnaces with graduated solutions for the heat treatment of materials in air. This catalog clearly presents the different furnace concepts that can be used for the different processes.

Which furnace is suitable for which application?

The furnace type requirements generally depend on the following factors:

- Desired temperature working range
- Charge dimensions
- Required heating and cooling times
- Throughput
- Type of loading respectively degree of automation
- Safety requirements, e.g. when working with charges containing solvents

Depending on the process requirements, customized solutions for the heat treatment including quenching can be offered. The furnaces can be designed either electrically heated or gas-fired.



Chamber oven KTR 3100 DT with rotating system

Ovens and Heating Cabinets

Chamber ovens or heating cabinets are particularly suitable for drying processes, curing processes and also heat treatment processes that take place at low temperatures. Heating cabinets with a capacity of 4500 liters or more which are operated with a separate heating unit up to 150 °C represent the entry-level price. If flammable substances are released during the drying process, chamber ovens can be used and expanded with a safety system in accordance with EN 1539.

Forced Convection Chamber Furnaces up to 850 °C

Forced convection chamber furnaces are used for processes that take place below 850 °C. This furnace family convinces with a very good temperature uniformity due to the powerful air circulation. Convection chamber furnaces are particularly suitable for high normative requirements, such as the AMS2750F. A wide range of standard sizes, the modular structure and the choice between three different maximum working temperatures enable an individual configuration tailored to the process.

Chamber Furnaces with Radiant Heating

Chamber furnaces with radiant heating are ideally suited for use in tool making and in the hardening shop for processes such as annealing, hardening or forging thanks to their robust design. For heat treatment processes that require short heating times and thus a high heating output, the furnaces can be designed with gas firing.



Forced convection chamber furnace NA 250/45



Chamber furnace N 41/H with radiant heating

Bogie Hearth Furnaces with Radiant Heating or Forces Air-Circulation



Bogie hearth furnace W 3900/85AS

Bogie hearth furnaces are used for high charge weights. The bogie hearth can be loaded outside the furnace using a crane or forklift. The electric car drive enables the bogie to be moved easily. By using several bogies, the furnace system can also be designed for an automatic bogie exchange.

Depending on the application temperature and purpose, these furnaces are available as forced convection bogie hearth furnaces up to 850 °C, and above this temperature as radiant ovens. All models can be electrically or gas-fired. With the gas furnace can be designed with direct or indirect heating. Indirect heating is recommended if the charge is sensitive to combustion gases.

Top Hat Furnaces

In practice, top hat furnaces or bottom loading furnaces offer the advantage that they can be freely charged from different sides. The basic furnace is equipped with a fixed table under the hood. The system can be expanded with one or more changing tables, which are driven by hand or motor. Automatic table changes can also be easily implemented with this technology.



Forced convection pit-type furnace SAH 1780/60S

Pit-Type and Top-Loading Furnaces

Pit-Type and Top-Loading Furnaces are very suitable for the heat treatment of long or heavy components. In most cases, charging is carried out with an indoor crane. Thanks to their powerful air circulation, the furnaces with a maximum temperature of up to 850 °C achieve a very good temperature uniformity. The radiation-heated top-loading furnace for the temperature range up to 1280 °C also achieve very good temperature uniformity in the upper temperature range due to their five-sided heating.

Furnaces for Continuous Processes

Continuous furnaces are the right choice for continuous processes with fixed cycle times such as drying, preheating, curing, aging, vulcanizing, or tempering. The furnace design depends on the required throughput, the process requirements for the heat treatment such as the process temperature and the required cycle time.

Quench and Temper Plants

Quench and temper plants are used, for example, for the solution annealing and subsequent rapid quenching of aluminum alloys. In the case of thin-walled aluminum components in particular, quenching delay times of just 5 seconds from the beginning of the door opening to complete immersion of the charge in the quenching bath must be sometimes implemented. These strict requirements can usually only be achieved with a chute furnace. Furnace concepts with manipulators and for higher working temperatures, e.g. for tempering steel, can also be realized.



Drop-bottom furnace plant for aluminum