

Non-Oxide Furnaces (Selection)

Task	Pyrolysis Sintering	Silicisation	Pyrolysis Sintering Silicisation
Effective volume	up to 385 l	up to 385 l	up to 10 l
Heating capacity	up to 250 kW	up to 250 kW	41 kW
Ultimate vacuum	1×10^{-2} mbar	1×10^{-2} mbar	1×10^{-2} mbar
T_{\max} vacuum	2000°C	2000°C	1900°C
T_{\max} N ₂	1800°C	1800°C	1800°C
T_{\max} Ar	2400°C	2400°C	1900°C
T_{\max} He	2000°C	2000°C	-
Partial pressure	10 - 900 mbar	10 - 900 mbar	-

Oxidic Furnaces (Selection)

Task	Sintering	Sintering
Useful volume	64 l	125 l
Heating capacity	18 kW	9,6 kW
Ultimate vacuum	-	-
T_{\max} vacuum	-	-
T_{\max} N ₂ / air	1700°C	1100°C
T_{\max} Ar	-	-



Fraunhofer-Center HTL
is certified acc. to ISO 9001:2015

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Firing Tests

Firing Tests

For the thermal treatment of oxide and non-oxide components, furnaces with useful volumes between 1 litre and 385 litres are available in our pilot plants.

The following processes can be carried out and optimised in close cooperation with the customer:

- Debinding
- Pyrolysis
- Graphitisation
- Melt infiltration
- Sintering

Some plants are connected to a thermal afterburning system so that processes involving large volumes of condensate can also be carried out. We optimise customer-specific thermal processes in laboratory furnaces.

The following atmospheres can be used:

- Vacuum
- Inert gas
- Reduced atmospheres
- Air



Quality Control / Characterisation

In addition to the test firings, all samples and components can be subjected to quality control before and after firing by means of computer tomography, mechanical characterisation, density and porosity measurements, etc. in order to document material changes or possible damage.

Furnaces

- Chamber furnaces oxide or non-oxide
- Tube furnaces continuous, discontinuous
- Measuring furnaces for in situ investigations
- Rotary kiln (operation with inert gas)
- Roller furnace
- Hydrogen furnace

Services

- Test firings and build-up firings according to customer specifications at defined atmospheres
- Temperature range room temperature up to 2400°C
- Furnace volumes between 1 litre and 385 litres can be used
- Maximum component size up to 800 x 800 x 600 mm³
- Optimisation of manufacturing processes in terms of energy consumption and product properties
- Process control and process reliability through PLC control and optical monitoring
- Process documentation and final inspection of components according to customer requirements

