



HIGH TEMPERATURE CHAMBER FURNACE UP TO 1800°C - HTF

The HTF industrial furnace range has maximum operating temperatures of 1600 °C, 1700 °C, or 1800 °C. All models are heated by molybdenum disilicide elements.

The HTF industrial furnace is available in usable volumes of 27, 64, 128, 165, 250, 332 and 560 litres. Independent over-temperature protection is fitted as standard for unattended operation.

Heat treatment is only possible in air. An additional gas supply, with hand valve and rotameter, can be supplied, which results in a slight modification of the atmosphere that will only suppress the Oxygen level as the system is not sealed. As a result, the HTF is ideal for sintering ceramics and oxide ceramics.

If debinding is required before sintering, Carbolite Gero offers a debinding package for the HTF. The debinding package consists of an inlet for preheated air, several gas inlets, and an afterburner. The preheated air is symmetrically purged at several gas inlets into the furnace, which improves temperature uniformity at low temperatures and sample envelopment by the incoming air. All gaseous by-products generated during the debinding process are combusted in an afterburner that is driven by propane gas and compressed air. On completion of debinding, the furnace temperature will increase to begin the sintering process.

APPLICATION EXAMPLES

annealing, ceramic injection moulding (CIM), debinding, debinding in air, degassing, drying, sintering, sintering in air, sublimation, synthesis, tempering

STANDARD FEATURES

- | 1600 °C, 1700 °C & 1800 °C maximum operating temperatures
- | From 27 to 560 litre capacities
- | Programmable EPC3016P1 controller
- | Over-temperature protection
- | High quality molybdenum disilicide heating elements
- | Advanced refractory interior, used in combination with energy efficient low thermal mass insulation
- | Automatic movement of the door
- | Controller mounted on a user-friendly satellite
- | Ethernet communications

OPTIONS (*SPECIFY THESE AT TIME OF ORDER*)

- | A range of sophisticated digital controllers, multisegment programmers and data loggers with digital communication options is available - more information about controllers
- | Fast cooling option to reduce the natural cool down time below 600 °C
- | Current voltage display
- | Debinding options on request
- | Gas supply with manually adjustable flow meter
- | Modification of the atmosphere in the furnace chamber can be achieved but oxygen cannot be removed completely because it is not gas tight

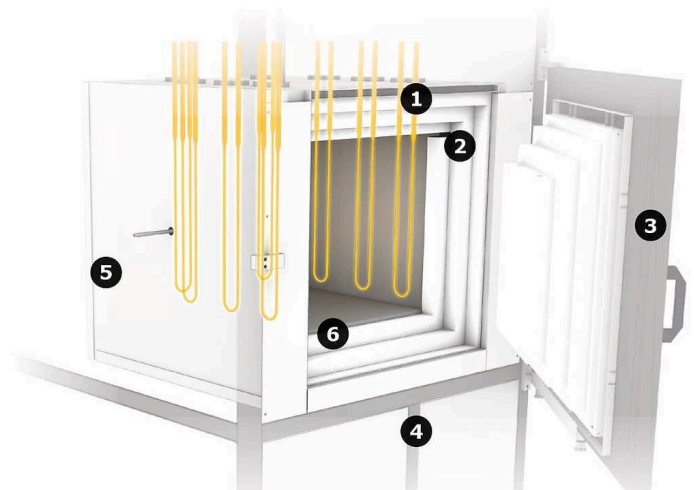
TECHNICAL DETAILS

View inside the 1700 °C and 1800 °C HTF chamber furnace:

1. heating elements (MoSi₂)
2. ceramic fibre insulation
3. front door
4. supporting frame
5. thermocouple
6. usable space

MoSi₂, U-shaped heating elements are mounted in a vertical, hanging position in the HTF. Heat is insulated with ceramic fibre plates which are constructed in layers with a suited thickness for improved temperature uniformity. The maximum temperature of the plates is selected depending on the maximum temperature of the furnace.

Water cooling is not required as the insulation material has low heat conductance. The system is externally cooled by convection of ambient air and encased by the metallic plates. The MoSi₂ heating elements are especially suited for high temperature processes. At high temperatures, the MoSi₂ naturally creates a protective oxide layer. Outstanding temperature uniformity and compact design are unique features of the HTF chamber furnace.



Layout diagram

HIGH TEMPERATURE CHAMBER FURNACE UP TO 1800°C - HTF

EXAMPLES



HTF 17/64 with debinding option incl. active propane afterburner and Mini8 touchscreen controller



HTF 17/64 with Mini8 touchscreen controller

TECHNICAL DETAILS (MODELS)

| | HTF__/27 | HTF__/64 | HTF__/128 |
|-----------------------------------|--------------------------------------|--------------------|--------------------|
| Max temp (°C) | 1700, 1800 | 1600, 1700, 1800 | 1600, 1700, 1800 |
| Max. heat-up rate (°C/min) | 10 | 10 | 10 |
| Cooling time (h) | 10 | 12 | 12 |
| Dimensions: | | | |
| Internal H x W x D (mm) | 300 x 300 x 300 | 400 x 400 x 400 | 400 x 400 x 800 |
| Dimensions: | | | |
| External H x W x D (mm) | 1610 x 7800 x 945 (door open H 1935) | 2000 x 1000 x 1200 | 2000 x 1000 x 1500 |
| Volume (l) | 27 | 64 | 128 |
| Max power (W) | 10000 | 16000 | 40000 |

| | HTF__/165 | HTF__/240 | HTF__/430 |
|--|--------------------------------|--------------------|--------------------|
| Max temp (°C) | 1600, 1700, 1800 | 1600, 1700, 1800 | 1600, 1700, 1800 |
| Max. heat-up rate (°C/min) | 10 | 10 | -- |
| Cooling time (h) | 13 | 14 | -- |
| Dimensions: Internal H x W x D (mm) | 550 x 550 x 550 | 500 x 500 x 1000 | 600 x 600 x 1200 |
| Dimensions: External H x W x D (mm) | 2450 x 1400 x 1400 (door open) | 2000 x 1000 x 1500 | 2400 x 1500 x 2000 |
| Volume (l) | 165 | 240 | 430 |
| Max power (W) | 40000 | -- | -- |

HTF__/560

| | |
|--|--------------------|
| Max temp (°C) | 1600, 1700, 1800 |
| Max. heat-up rate (°C/min) | -- |
| Cooling time (h) | -- |
| Dimensions: Internal H x W x D (mm) | 780 x 600 x 1200 |
| Dimensions: External H x W x D (mm) | 2400 x 1500 x 2000 |
| Volume (l) | 560 |
| Max power (W) | -- |

Please note

- Maximum continuous operating temperature is 100 °C below maximum temperature

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