

Chamber Furnaces up to 1400 °C

Furnaces with sturdy insulation made from lightweight refractory bricks for rough use in the laboratory. These universal chamber furnaces with radiation heating have been specifically designed to withstand heavy-duty use in the tool shop and are available with many options such as gassing boxes or loading systems.

The following equipment applies to all furnaces in this chapter:



Dual shell ventilated housing made of textured stainless steel sheets for low surface temperature and high stability



Solid state relays provide for low noise operation



Exclusive use of insulation materials without categorization according to EC Regulation No 1272/2008 (CLP). This explicitly means that aluminosilicate wool, also known as "refractory ceramic fiber" (RCF), which is classified and possibly carcinogenic, is not used.



Defined application within the constraints of the operating instructions



Controller with intuitive touch operation



NTLog Basic for Nabertherm controller: recording of process data with USB-flash drive



Freeware NTEdit for convenient program input via Excel™ for Windows™ on the PC



Freeware NTGraph for evaluation and documentation of firings using Excel™ for Windows™ on the PC



MyNabertherm App for online monitoring of the firing on mobile devices for free download



As additional equipment: Process control and documentation via VCD software package for monitoring, documentation and control



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Chamber Furnaces with Brick Insulation or Fiber Insulation up to 1400 °C

These big chamber furnaces LH 15/12 - LF 120/14 have been trusted for many years as professional chamber furnaces for the laboratory. These furnaces are available with either a robust insulation of light refractory bricks (LH models) or with a combination insulation of refractory bricks in the corners and low heat storage, quickly cooling fiber material (LF models). With a wide variety of optional equipment, these chamber furnaces can be optimally adapted to your processes.

Standard Equipment

- Tmax 1200 °C, 1300 °C, or 1400 °C
- High furnace chamber with five-sided heating for very good temperature uniformity
- Heating elements on support tubes ensure free heat radiation and a long service life
- Controller mounted on furnace door and removable for comfortable operation
- Protection of bottom heating and flat stacking surface provided by embedded SiC plate in the floor
- LH models: multi-layered insulation of light refractory bricks and special backup insulation
- LF models: high-quality fiber insulation with corner bricks for shorter heating and cooling times
- Door with brick-on-brick seal, hand fitted
- Generously dimensioned heating provides for short heating times
- Self-supporting arch for high stability and greatest possible protection against dust
- Motorized exhaust air flaps
- Freely adjustable air inlet integrated in furnace floor
- Base included
- Controller with touch operation B500 (5 programs with each 4 segments), alternative controllers see page 84



Chamber furnace LH 30/14

Additional Equipment

- Parallel swinging door (user protected from heat radiation)
- Lift door with electro-mechanic linear drive for opening when hot
- Cooling system to cool the furnace with a defined temperature gradient or with a preset fresh air volume. Both operating modes can be switched on and off for different segments by means of the extra function of the controller.
- Protective gas connection to purge with non-flammable process gases
- Manual or automatic gas supply system
- Stainless steel exhaust hood as interface to customer's exhaust system
- Scale to measure weight reduction during annealing



Chamber furnace LH 216/12 with fresh air fan to accelerate the cooling times



Chamber furnace LH 30/12 with manual lift door



Chamber furnace LH 60/12 SW with scale to measure weight reduction during annealing

Model	Tmax in °C	Inner dimensions in mm			Volume in l	Outer dimensions ¹ in mm			Connected load in kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
LH 15/12	1200	250	250	250	15	680	860	1230	5	3-phase ²	170
LH 30/12	1200	320	320	320	30	710	930	1290	7	3-phase ²	200
LH 60/12	1200	400	400	400	60	790	1180	1370	8	3-phase	300
LH 120/12	1200	500	500	500	120	890	1180	1470	12	3-phase	410
LH 216/12	1200	600	600	600	216	990	1280	1590	20	3-phase	470
LH 15/13	1300	250	250	250	15	680	860	1230	7	3-phase ²	170
LH 30/13	1300	320	320	320	30	710	930	1290	8	3-phase ²	200
LH 60/13	1300	400	400	400	60	790	1180	1370	11	3-phase	300
LH 120/13	1300	500	500	500	120	890	1180	1470	15	3-phase	410
LH 216/13	1300	600	600	600	216	990	1280	1590	22	3-phase	470
LH 15/14	1400	250	250	250	15	680	860	1230	8	3-phase ²	170
LH 30/14	1400	320	320	320	30	710	930	1290	10	3-phase ²	200
LH 60/14	1400	400	400	400	60	790	1180	1370	12	3-phase	300
LH 120/14	1400	500	500	500	120	890	1180	1470	18	3-phase	410
LH 216/14	1400	600	600	600	216	990	1280	1590	26	3-phase	470
LF 15/13	1300	250	250	250	15	680	860	1230	7	3-phase ²	150
LF 30/13	1300	320	320	320	30	710	930	1290	8	3-phase ²	180
LF 60/13	1300	400	400	400	60	790	1180	1370	11	3-phase	270
LF 120/13	1300	500	500	500	120	890	1180	1470	15	3-phase	370
LF 15/14	1400	250	250	250	15	680	860	1230	8	3-phase ²	150
LF 30/14	1400	320	320	320	30	710	930	1290	10	3-phase ²	180
LF 60/14	1400	400	400	400	60	790	1180	1370	12	3-phase	270
LF 120/14	1400	500	500	500	120	890	1180	1470	18	3-phase	370

¹External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

²Heating only between two phases

*Please see page 84 for more information about supply voltage



Parallel swinging door for opening when hot



Model with brick base



LF furnace design provides for shorter heating and cooling times

Chamber Furnaces for Annealing, Hardening and Brazing up to 1280 °C

To withstand harsh use in the laboratory, e.g. when heat-treating metals, robust insulation with light refractory bricks is necessary. The chamber furnaces N 7/H - N 87/H are a perfect fit to solve this problem. The furnaces can be extended with a variety of accessories, like annealing boxes for operation under protective gas, roller guides, or a cooling station with a quench tank. Even high-performance applications like the annealing of titanium in medical applications can be implemented without the use of expensive and complicated annealing systems.



Chamber furnace N 61/H

Standard Equipment

- Tmax 1280 °C
- Deep furnace chamber with three-sides heating: from both side walls and bottom
- Heating elements on support tubes ensure free heat radiation and a long service life
- Bottom heating protected by heat-resistant SiC plate
- Stainless steel upper door jamb protects furnace structure when furnace is opened hot
- Temperature uniformity up to ± 10 °C according to DIN 17052-1 see page 77
- Low energy consumption due to multi-layer insulation
- Base frame included in the delivery, N 7/H - N 17/HR designed as table-top model
- Exhaust opening in the side of the furnace, or on rear wall of chamber furnace in the N 31/H models and higher
- Parallel guided downward swinging door (user protected from heat radiation)
- Door movement cushioned with gas dampers/struts
- Controller with touch operation B500 (5 programs with each 4 segments), alternative controllers see page 84

Model	Tmax in °C	Inner dimensions in mm			Volume in l	Outer dimensions ¹ in mm			Connected load in kW	Electrical connection*	Weight in kg	Heating time in min ²
		w	d	h		W	D	H				
N 7/H	1280	250	250	140	9	800	650	600	3.0	1-phase	60	320
N 11/H	1280	250	350	140	11	800	750	600	3.5	1-phase	70	320
N 11/HR	1280	250	350	140	11	800	750	600	5.5	3-phase ³	70	70
N 17/HR	1280	250	500	140	17	800	900	600	6.4	3-phase ³	90	110
N 31/H	1280	350	350	250	31	1040	1030	1340	15.0	3-phase	210	90
N 41/H	1280	350	500	250	41	1040	1180	1340	15.0	3-phase	260	105
N 61/H	1280	350	750	250	61	1040	1430	1340	20.0	3-phase	400	105
N 87/H	1280	350	1000	250	87	1040	1680	1340	25.0	3-phase	480	105

¹External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

²Heating time of the empty and closed furnace up to Tmax - 100 K (connected to 230 V 1/N/PE resp. 400 V 3/N/PE)

³Heating only between two phases

*Please see page 84 for more information about supply voltage



Working with protective gas boxes for a protective gas atmosphere using a charging cart



Chamber furnace N 7/H as table-top model



Deep furnace chamber with three-sides heating

Accessories for the Heat Treatment of Metals

Our wide range of furnaces for heat treatment of metals can be extended with a large selection of accessories to suit to the specific application.

Protective Gas Boxes for Heat Treatment in Protective Gas

By using protective gas boxes, annealing furnaces, forced convection furnaces and pit-type furnaces can be upgraded for heat treatment processes under non-flammable process gases.



Annealing Boxes

Annealing boxes are filled with powder or granules into which the charge is placed. Processes like soldering can be carried out in an inexpensive manner.



Complete Workshop Hardening Systems

The Nabertherm compact hardening systems consist of a hardening furnace, a tempering furnace, a quenching and cleaning bath. They can be used for various heat treatment processes in the workshop.



Quenching and Cleaning Baths

Baths for quenching in oil or water as well as for cleaning and degreasing are available as single or double baths and are made of stainless steel.



Auxiliary Materials for Better Charge Results

Hardening foils, annealing bags, granulate



Protective Equipment

Gloves, face and body protection



For more information about our extensive range of heat treatment accessories, please request our catalog "Thermal Process Technology 2"