Nabertherm

MORE THAN HEAT 30-3000 °C

DENTAL FURNACES

www.nabertherm.com

Made in Germany

Facts

- Production of Arts & Crafts furnaces, laboratory furnaces, dental furnaces and industrial furnaces since 1947
- Production site in Lilienthal/Bremen - Made in Germany
- 530 employees worldwide
- 150,000 customers in more than 100 countries
- Very wide product range of furnaces
- One of the biggest R&D departments in the furnace industry
- High vertical integration

Global Sales and Service Network

- Manufacturing only in Germany
- Decentralized sales and service close to the customer
- Own sales organization and long term sales partners in all important world markets
- Individual on-site customer service and consultation
- Fast remote maintenance options for complex furnaces
- Reference customers with similar furnaces or systems close to you
- Secured spare parts supply, many spare parts available from stock
- Further informarion see page 42

Setting Standards in Quality and Reliability

- Project planning and construction of tailormade thermal process plants incl. material handling and charging systems
- Innovative controls and automation technology, adapted to customer needs
- Very reliable and durable furnace systems
- Customer test center for process assurance

Experience in Thermal Processing

- Thermal Process Technology
- Additive Manufacturing
- Advanced Materials
- Fiber Optics/Glass
- Foundry
- Laboratory
- Dental
- Arts & Crafts

Table of Contents

Zirconia Sintering Furnaces

Chamber Furnaces for Annealing after Laser Sintering

Sintering Furnace for Cobalt-Chromium

Process Control and Documentation

Burnout Furnaces

Zirconia Sintering Furnaces

Sintering furnaces for zirconium oxide - open system for all common blanks from leading manufacturers, from non-translucent to translucent zirconium.

- Dual shell housing made of textured stainless steel sheets with additional fan cooling for low surface temperature
- Exclusive use of insulation materials without categorization according to EC Regulation No 1272/2008 (CLP). This explicitly means that alumino silicate 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
- 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 documention 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

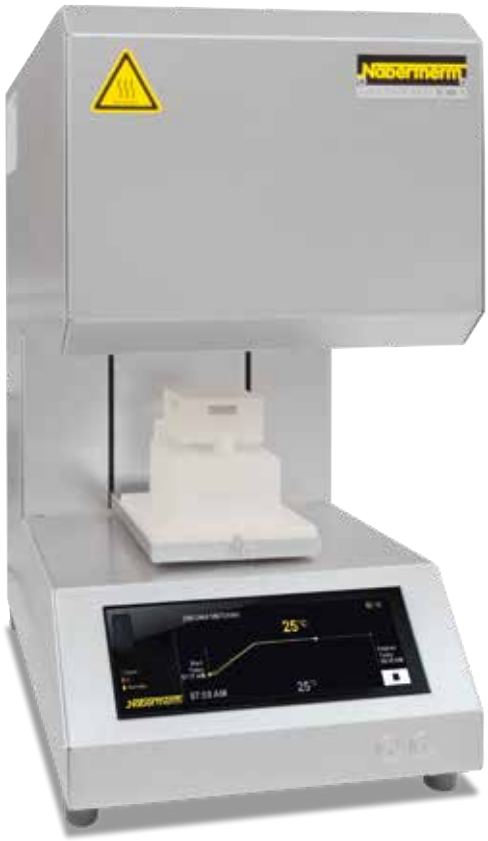
Furnace Group	Model	Page
High-temperature speed sintering furnace	LHT 01/16 Turbo Fire	6
High-temperature sintering furnaces with lifting table up to 1650 °C	LHT ../17 LB Speed	8
High-temperature sintering furnaces up to 1650 °C for sintering translucent zirconia	LHT ../17 D	10
High-temperature sintering furnaces up to 1550 °C for sintering non-translucent zirconia	LHTCT ../16	12
Accessories for sintering furnaces		14

High-Temperature Speed Sintering Furnace LHT 01/16 Turbo Fire
for the Speed Sintering of Translucent Zirconium Oxide

The high-temperature speed sintering furnace LHT 01/16 Turbo Fire was developed for the speed sintering of 1 - 3 single crowns made of translucent zirconium oxide up to a maximum temperature of 1600 °C. The entire sintering process can be completed within one hour. The electrically driving lifting table enables convenient charging. The allround heating of the furnace chamber with six heating elements made of molybdenum disilicide ensures a very good temperature uniformity and fast heating times can be achieved. The special insulation with low heat capacity additionally ensures short cooling times. The heating elements tailored to the process avoid chemical interactions between the charge and the furnace components as best as possible and offer a long service life.

The crowns are placed in a saggar made of technical ceramics. The starter set for charging is already included in the scope of delivery. The furnace ideally suited for chairside production at the dentist or for urgent jobs in the dental laboratory. The high-temperature speed sintering furnace LHT 01/16 Turbo Fire sinters up to 3 single crowns within one hour. It can be programmed for all common temperature curves for speed sintering translucent zirconium oxide.

The colored, high-contrast 6.8 inch touch display enables convenient program input on the large screen. Programs can be displayed graphically and in tabular form. With the free MyNabertherm App, the furnace can be conveniently monitored online via mobile devices as a powerful addition to the Nabertherm controller. The process progress can be tracked, push notifications provide information about malfunctions.



High-temperature speed sintering furnace LHT 01/16 Turbo Fire

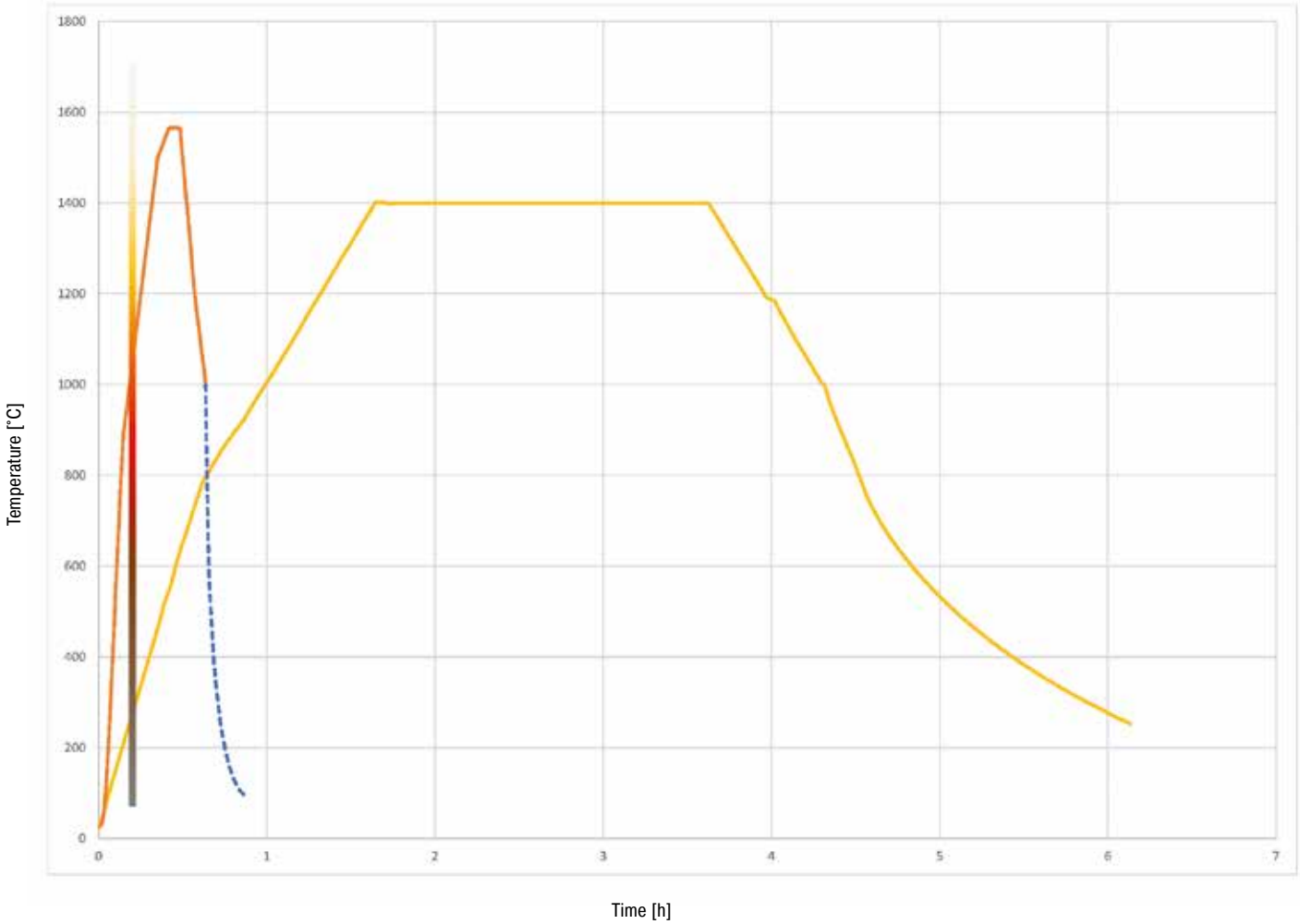
Standard Equipment

- Tmax 1600 °C
- Six high-quality heating elements made of molybdenum disilicide offer very good protection against chemical interaction between charge and heating elements
- Very good temperature uniformity due to allround heating of the furnace chamber
- Scope of delivery includes a starter set for charging on one level
- Precise, motorized toothed belt drive of the table with button operation
- 1 - 3 single crowns can be sintered within an hour
- Usable for speed sintering blanks of all leading manufacturers
- Exhaust air vent in the roof
- Type S thermocouple
- Controller with touch operation P580 (50 programs with each 40 segments), 2 preset sample programs, controls description see page 34
- MyNabertherm App for online monitoring of the firing on mobile devices for free download see page 36

Additional Equipment

- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load

Speed Sintering Process Time of the LHT 01/16 Turbo Fire Compared to the Regular Sintering Process Time



LHT 01/16 Turbo Fire

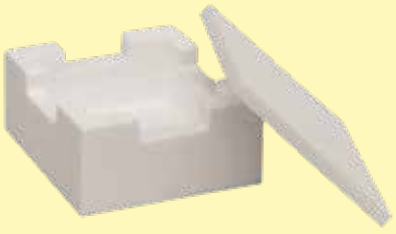
Cooling time of a single preparation with open lift table

LHT 01/17 D

Model	Tmax	Work space dimensions[2] in mm			Charging area in mm		Maximum	Outer dimensions[1] in mm			Connected load	Electrical	Weight	Heating time
	in °C	w	d	h	w	d	units	W	D	H	in kW	connection*	in kg	in min[3]
LHT 01/16 Turbo Fire	1600	65	65	30	85	85	5	295	405	565	2.9	1-phase	25	20

[1]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
*These furnaces are available for main voltage of 200 V, 208 V, 220 V - 240 V, 1/N/PE or 2/PE
[2]Corresponds to charge saggars with spacer
[3]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)

Table insulation incl. spacers



Starter set for one level for LHT 01/16 Turbo Fire
Article No.: 600093981 & 6000093984

Very good temperature uniformity due to allround heating of the furnace chamber

High-Temperature Sintering Furnaces with lifting table up to 1650 °C
for Sintering of Translucent Zirconia

Due to their maximum temperature of 1650 °C and their large furnace chamber, the high-temperature sintering furnaces are perfectly suited for sintering translucent zirconia. The electrically driving lifting table significantly simplifies the charging of the high-temperature furnace. The all-around heating of the cylindrical furnace chamber ensures a very even temperature uniformity.

Equipped with special heating elements made of molybdenum disilicide, chemical interactions between the charge and the furnace components are almost avoided. The sintered material is placed in saggars made of technical ceramics. Up to two batch containers for max. 15 single crowns per level can be accommodated in the LHT 01/17 LB Speed. The LHT 02/17 LB Speed offers space for up to three saggars for max. 25 individual crowns per level and thus guarantees high productivity.

The high-temperature sintering furnaces are additionally equipped with a drying as well as a forced cooling function. For residual drying, the oven remains open gapwise during heating up to a defined temperature and thus ensures reliable removal of moisture. For accelerated cooling, the furnace is automatically opened step by step under program control. Depending on the batch used and the saggars, these high-temperature furnaces can achieve total cycle times of less than two and a half hours. The furnaces can be individually programmed for all recommended sintering curves of all zirconia manufacturers.

High-temperature sintering furnace LHT 01/17 LB Speed with rapid cooling function

High-temperature sintering furnace LHT 02/17 LB Speed with rapid cooling function

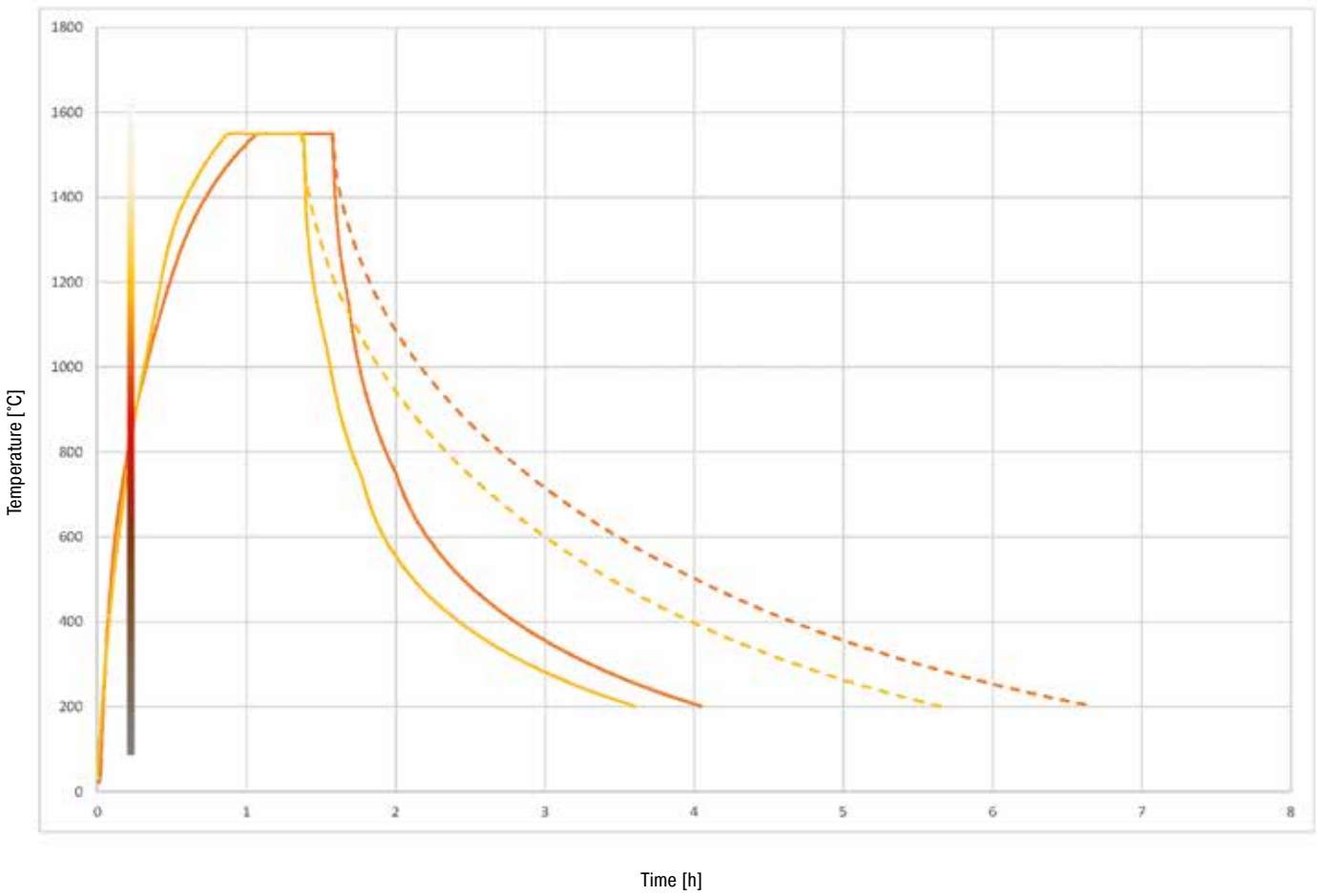
Standard Equipment

- Tmax 1650 °C
- Furnace chamber with a volume of 1 or 2 liters, table with large floor space
- High-quality heating elements made of molybdenum disilicide offer very good protection against chemical interaction between charge and heating elements
- Excellent temperature uniformity thanks to three (LHT 02/17 LB Speed) or four-sided (LHT 01/17 LB Speed) heating of the furnace chamber
- Scope of delivery includes a starter set for charging on one level, additional levels as additional equipment
- Precise, motorized toothed belt drive of the table with button operation
- Forced cooling function with automatic, step-by-step opening from a preset temperature
- Exhaust air vent in the roof
- Type S thermocouple
- Usable for sintering blanks of all leading manufacturers
- Drying function: When starting the program the table will be driven in drying position and closes automatically at 500 °C
- Controller with touch operation P580 (50 programs with each 40 segments), 2 preset sample programs, controls description see page 34
- MyNabertherm App for online monitoring of the firing on mobile devices for free download see page 36

Additional Equipment

- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Stackable saggars for loading in up to two or three levels, depending on model, see page 14

LHT ../17 LB Speed Heat Up and Cooling Times



LHT 01/17 LB Speed without forced cooling
LHT 01/17 LB Speed with forced cooling
LHT 02/17 LB Speed without forced cooling
LHT 02/17 LB Speed with forced cooling

Model	Tmax	Work space dimensions[2] in mm			Charging area in mm		Maximum	Outer dimensions[1] in mm			Connected load	Electrical	Weight	Heating time
	in °C	w	d	h	w	d	units	W	D	H	in kW	connection*	in kg	in min[3]
LHT 01/17 LB Speed	1650	75	110	60	95	130	30	350	590	695	2.9	1-phase	45	35
LHT 02/17 LB Speed	1650	Ø 115		110	135	135	75	390	590	785	3.3	1-phase	55	60

[1]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
*These furnaces are available for main voltage of 200 V, 208 V, 220 V - 240 V, 1/N/PE or 2/PE
[2]Corresponds to charge saggars with spacer
[3]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)


Automated table lowering for fast cooling


Charge saggar, two levels for LHT 02/17 LB Speed


Starter set for one level for LHT 01/17 LB Speed

High-Temperature Sintering Furnaces up to 1650 °C
for Sintering Translucent Zirconia

These high-temperature furnaces are ideally suited for sintering bridges and crowns made of translucent zirconia. The special heating elements made of molybdenum disilicide promise very good protection against chemical interaction between the charge and the furnace components. The bridges and crowns are loaded in ceramic saggars. These high-temperature furnaces are particularly convincing due to their very good price-performance ratio. The furnaces can be individually programmed for all recommended sintering curves by almost all zirconium manufacturers.

High-temperature sintering furnace LHT 01/17 D

Standard Equipment

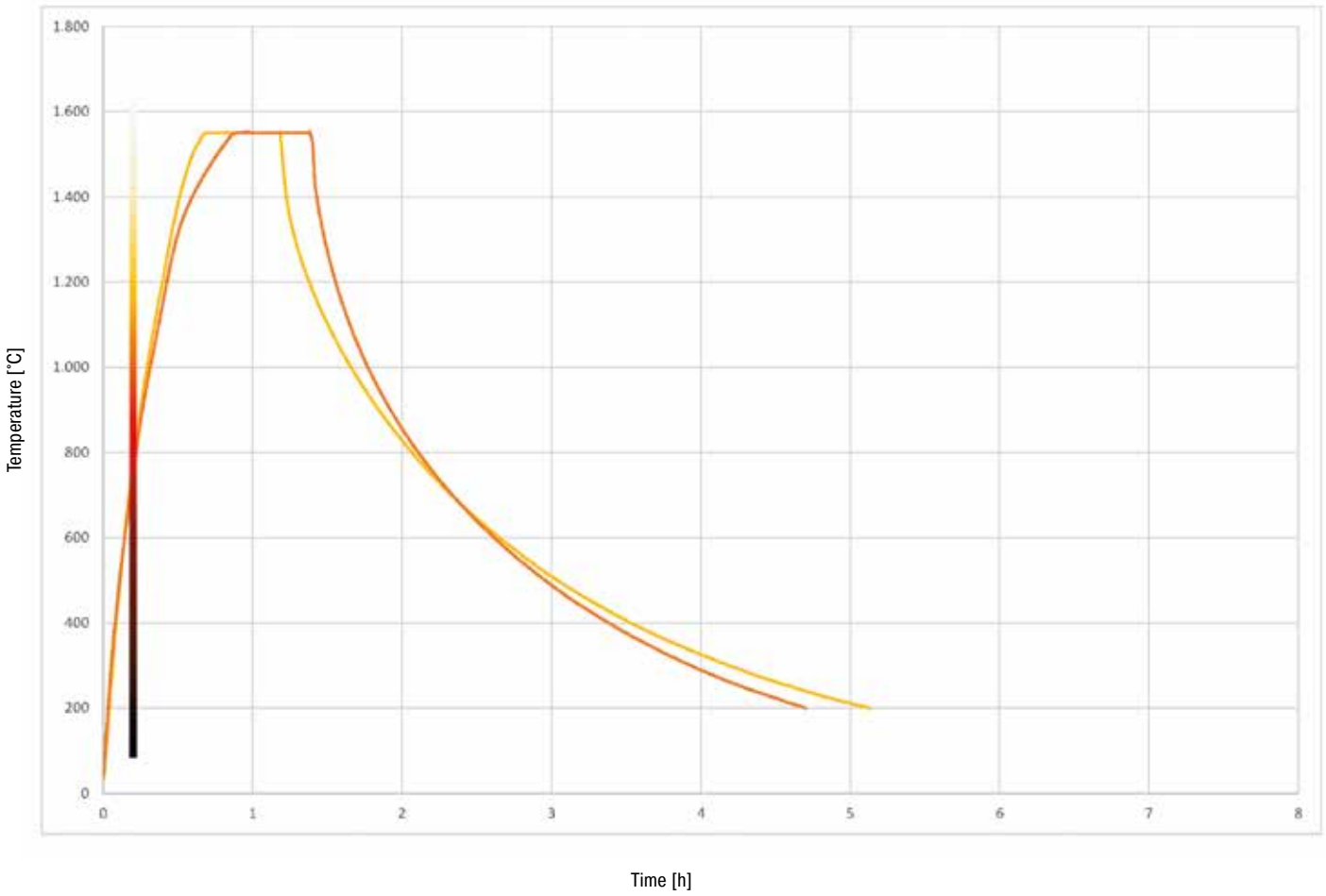
- Tmax 1650 °C
- Furnace chamber with a volume of 1 or 4 liters
- Special heating elements made of molybdenum disilicide offer very good protection against chemical interaction between charge and heating elements
- Scope of delivery includes a starter set for charging on one level, additional levels as additional equipment
- Adjustable air inlet
- Furnace chamber can be charged with up to two (LHT 01/17D) or three (LHT 03/17D) saggars, 15 or 25 individual crowns per level (depending on model)
- Exhaust air opening in the roof
- Type S thermocouple
- Precise temperature control, also in the lower temperature range for drying
- Switchgear with steady control of the heating elements
- Freely usable for sintering blanks of almost all leading manufacturers
- Controller with touch operation P580 (50 programs with each 40 segments), controls description see page 34
- MyNabertherm App for online monitoring of the firing on mobile devices for free download see page 36

High-temperature sintering furnace LHT 03/17 D

Additional Equipment

- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Stackable saggars for loading in up to two or three levels, depending on model, see page 14

LHT ../17 D Heat Up and Cooling Times



Model	Tmax	Inner dimensions in mm			Volume	Maximum	Outer dimensions in mm[3]			Connected	Electrical	Weight	Heating time
	in °C	w	d	h	in l	units	W	D	H[2]	load in kW	connection*	in kg	in min[1]
LHT 01/17 D	1650	110	120	120	1	30	385	425	525+195	2.9	1-phase	28	35
LHT 03/17 D	1650	135	155	200	4	75	470	630	770+260	3.0	1-phase	75	30

[1]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)
[2]Including opened lift door
[3]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

*These furnaces are available for main voltage of 200 V, 208 V, 220 V - 240 V, 1/N/PE or 2/PE

Over-temperature limiter

Charge saggar, two levels for high-temperature furnace LHT 03/17 D

Starter set for high-temperature furnace LHT 01/17 D

High-Temperature Sintering Furnaces up to 1550 °C
for Sintering Non-Translucent Zirconia

Designed as a table-top model with SiC heating rods, this comparably inexpensive high-temperature furnace offers numerous advantages when sintering non-translucent zirconia with an operating temperature of up to 1500 °C. The heating chamber and fast heat-up times make this model a good choice for CAD/CAM machining of zirconia. The controller of the furnace is freely programmable for the individual sintering of the zirconia material. The high-temperature furnace is also designed for connection to the single-phase power grid.

High-temperature sintering furnace LHTCT 01/16

Standard Equipment

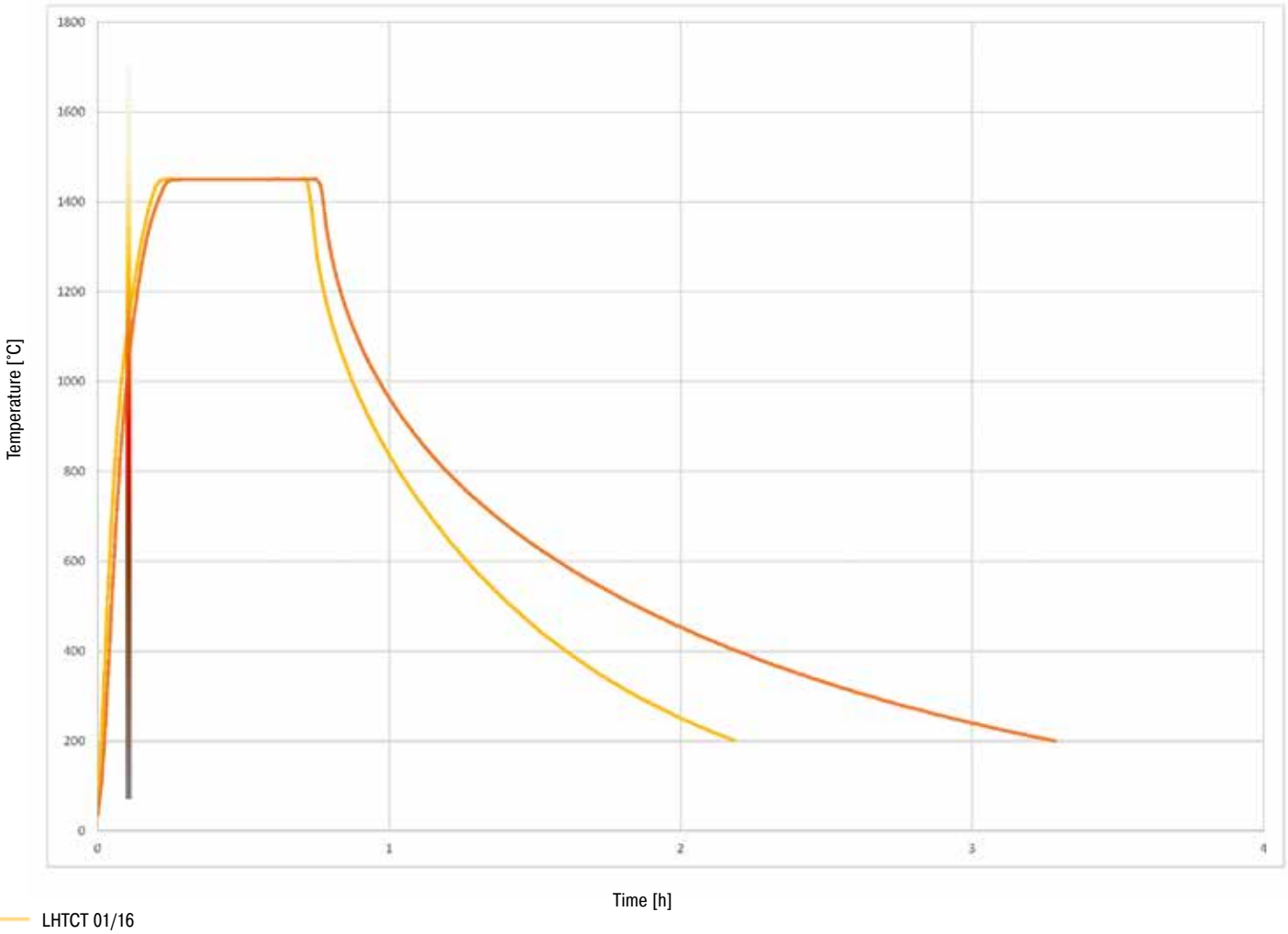
- Tmax 1550 °C
- Working temperature 1500 °C, increased wear and tear of heating elements must be expected in case of working at higher temperatures
- Single-phase connection (LHTCT 01/16)
- Scope of delivery includes a starter set for charging on one level, additional levels as additional equipment
- Furnace chamber can be charged with up to two (LHTCT 01/16) or four (LHTCT 03/16) saggars, 15 individual crowns per level
- Adjustable air inlet
- Type S thermocouple
- Switching system with solid-state-relays, power tuned to the SiC rods
- Easy replacement of heating rods
- Controller with touch operation C550 (10 programs with each 20 segments), controls description see page 34
- MyNabertherm App for online monitoring of the firing on mobile devices for free download see page 36

High-temperature sintering furnace LHTCT 01/16

Additional Equipment

- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Square saggar for charging of up to two layers (15 single crowns) see page 14
- Lid for top saggar

LHTCT ../16 Heat Up and Cooling Times



Model	Tmax in °C	Inner dimensions in mm w	d	h	Volume in l	Maximum units	Outer dimensions in mm[4] W	D	H[1]	Connected load in kW	Electrical connection*	Weight in kg	Heating time in min[2]
LHTCT 01/16	1550	110	120	120	1.5	30	340	300	460 + 195	3.5	1-phase	18	30
LHTCT 03/16	1550	120	210	120	3.0	60	400	535	530 + 215	10.0	3-phase[3]	40	30

*These furnaces are available for main voltage of 200 V, 208 V, 220 V - 240 V, 1/N/PE or 2/PE
[1]Including opened lift door
[2]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)
[3]Heating only between two phases
4External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

Loading in the high-temperature furnace LHTCT 03/16

Furnace chamber with high-quality fiber materials and SiC heating rods on both sides of the furnace

Starter set for high-temperature furnace LHTCT 01/16 + LHTCT 03/16

Accessories for Sintering Furnaces

Charge Saggar for Sintering Furnace LHT 01/16 Turbo Fire

Charge Saggar with Ventilation Openings
65 x 65 x 30 mm
Article No.: 6000093981

Lid for Charge Saggar
Article No.: 6000093984

Starter Set
Article No.: 699001320

Charge Saggars for Sintering Furnaces LHT 02/17 LB Speed and LHT 03/17 D

Spacer Ring with Ventilation Openings
Article No.: 699001055

Sintering Dish, Ø 115 mm
Article No.: 699001054

Starter Set, Ø 115 mm
Article No.: 699001066

Number of Required Charge Levels for Sintering Furnaces LHT 02/17 LB Speed and LHT 03/17 D in Overview:

For charging zirconia workpieces charge saggars are recommended. A saggar basically consists of the sintering dish as base and the spacer ring with ventilation openings. The material is highly resistant to temperature fluctuations and can be used for processes with short heat-up and cool-down times.

When charging the furnace it must be ensured that the lower charge carrier is generally resting on the spacer ring. This provides for air-circulation under this carrier and improves the temperature uniformity. It is recommended to cover upper saggar with another sintering dish as lid.

The starter set consists of a charge saggar, a spacer ring as a base and a second sintering dish as lid. The use of additional saggars (sintering dish and spacer ring) allows charging on additional levels. Both furnace models are designed to get charged with up to three charge saggars.

- 1 level: Starter set which includes 2 sintering dishes and 2 spacer rings
- 2 levels: Starter set + 1 sintering dish + 1 spacer ring
- 3 levels: Starter set + 2 sintering dishes + 2 spacer rings

Charge Saggar for Sintering Furnaces LHT 01/17 LB Speed, LHTCT 01/16, LHTCT 03/16 and LHT 01/17 D

Spacer with Ventilation Openings
Article No.: 699000529

Charge Saggar with Ventilation Openings 110 x 75 x 30 mm
Article No.: 699000279

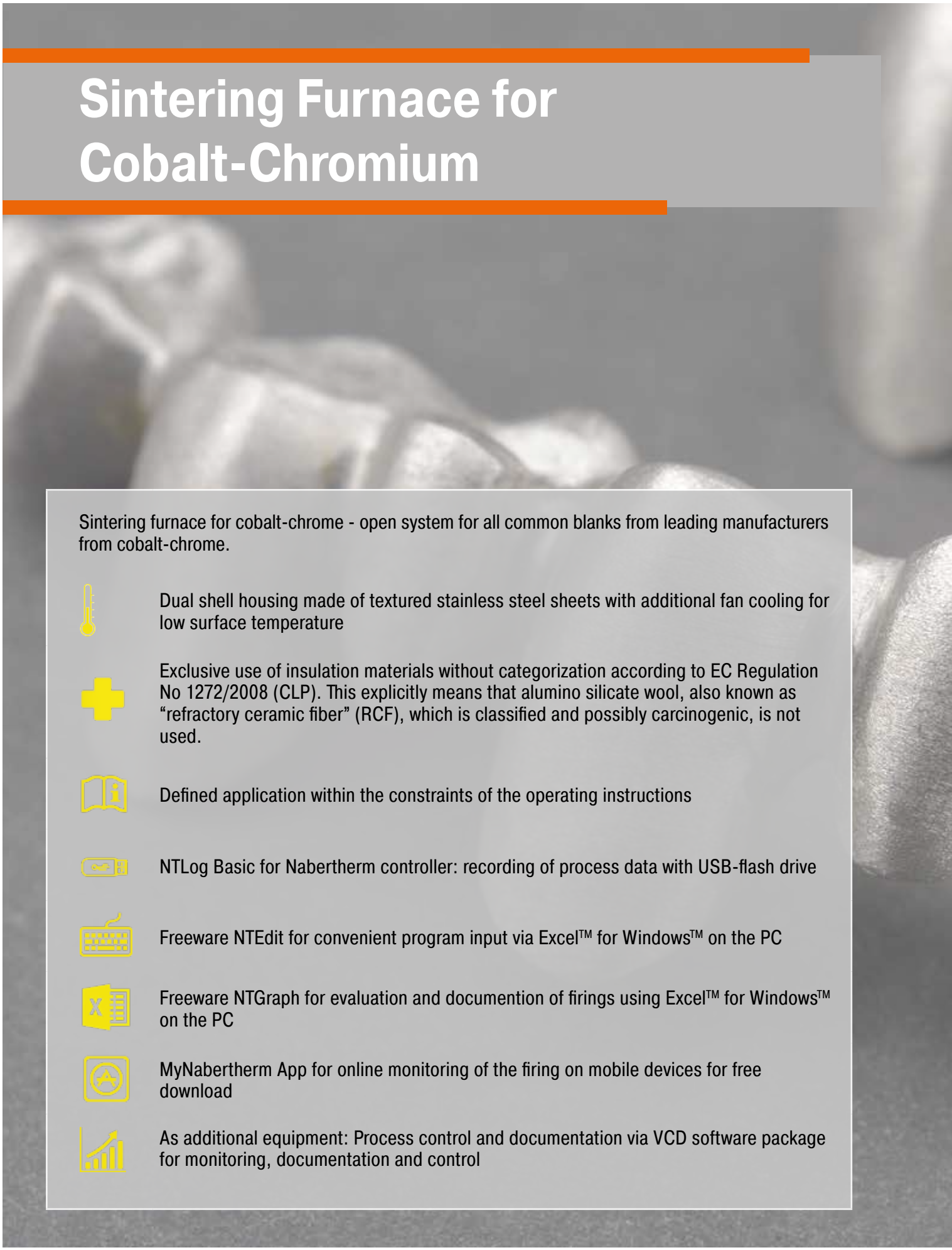
Lid for Charge Saggar
Article No.: 699000985

Starter Set, rectangular
Article No.: 699001124

Placing the zirconia product in charge saggars provides for optimum utilization of the furnace chamber. Up to two saggars + spacer can be stacked in the furnaces. The integrated air slots in the saggars and spacer ensure a better air circulation of the charge. The upper saggar can be closed with a separate ceramic lid.

Note: The Accessories Described above are Designed for Cold Charging and Discharging. Removing the Accessories in Hot Condition is not Possible.

Sintering Furnace for Cobalt-Chromium



Sintering furnace for cobalt-chrome - open system for all common blanks from leading manufacturers from cobalt-chrome.

- Dual shell housing made of textured stainless steel sheets with additional fan cooling for low surface temperature
- Exclusive use of insulation materials without categorization according to EC Regulation No 1272/2008 (CLP). This explicitly means that alumino silicate 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
- 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 documention 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

Furnace Group	Model	Page
Sintering furnace for cobalt-chromium	LT 02/13 CR	18
Accessories for sintering furnace for cobalt-chromium		19

Sintering Furnace LT 02/13 CR
for Cobalt-Chromium

The sintering furnace LT 02/13 CR is perfectly suited for sintering of cobalt-chromium restorations. The blanks are placed in a special sintering bell and will be heat-treated under argon. The specific design in combination with sintering pearls provides for good sintering results in a nearly oxygen-free atmosphere at very low argon consumption. The system is open and can be programmed for various materials up to sintering temperatures of 1300 °C. Two pre-installed sample programs, which can be adjusted individually. Furthermore, the sintering furnace LT 02/13 CR is designed for a single-phase connection.

Sintering furnace LT 02/13 CR

Standard Equipment

- Tmax 1300 °C
- Working temperature up to 1280 °C, depending on the CoCr material
- Single-phase connection
- Gas supply system with solenoid valve and flow meter
- Forced cooling system with compressed air possible
- Sintering bell with good sealing for sintering up to 30 single crowns under argon
- Sintering pearls, Ø 1,25 mm (200 g) included in delivery scope
- Special tongs included in the delivery scope
- Type S thermocouple
- Freely programmable controller C550 allows for automatic temperature control and switching of the gas flow
- Switching system with solid-state-relays to switch the heating
- Possibility to set two gas quantities for optimal adjustment to the sintering process
- Controller with touch operation C550 (10 programs with each 20 segments), controls description see page 34
- MyNabertherm App for online monitoring of the firing on mobile devices for free download see page 36

Additional Equipment

- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load

Model	Tmax	Inner dimensions in mm			Volume	Maximum	Outer dimensions in mm[5]			Process flush rate	Connected	Electrical	Weight	Heating time
	in °C	w	d	h	in l	units	W	D	H[1]	l/min	load in kW	connection[2]	in kg	in min[4]
LT 02/13 CR	1300	130	120	120	1,9	30	422	320 (430[3])	430 + 230	1.0	2.2	1-phase	25	35

[1]Including opened lift door
[2]These furnaces are available for main voltage of 200 V, 208 V, 220 V - 240 V, 1/N/PE or 2/PE
[3]Including compressed air connection for forced cooling
[4]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)
[5]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

Forced cooling system with compressed air

Flowmeter for Argon

Loading in the sintering furnace LT 02/13 CR

Accessories for Sintering Furnace LT 02/13 CR
for Cobalt-Chromium

Sintering furnace LT 02/13 CR

Sintering Bell for Sintering Furnace LT 02/13 CR

For sintering of NEM restorations under Argon, a sintering saggar with very good sealing is used. The sintering bell is made of durable, low-wear SiC material. The material is placed in the sintering bowl, covered with the sintering bell and sintered under argon. In total, up to 30 units per sintering process can be inserted.

The specific design in combination with sintering pearls provides for good sintering results in a nearly oxygen-free atmosphere at a very low argon consumption.

Sintering Pearls for Sintering Furnace LT 02/13 CR

The use of sintering pearls which reduce the atmosphere inside the sintering bell ensures opitmal results. They prevent the crowns and bridges from sticking or jamming during the sintering process.

It must be ensured that the frameworks und single crowns are imbedded in sintering pearls up to their upper edge. Though, it must be ensured that they should not enter the crowns in order not to hinder the sintering shrinkage.

Sintering Bell Set, Ø 95 x 50 mm
Article No.: 699001186

Special Tongs for Charging the Sintering Bell

We offer a pair of special tongs for loading and unloading the furnace. The sintering bell can easily be removed from the sintering chamber.

Note: The accessories described above are designed for cold charging and discharging. Removing them in hot condition is not permitted.

Sintering Pearls
Article No.: 699001185

Special Tongs, Length: 250 mm
Article No.: 699001189

Scan for video of installation of the furnace:
https://nabertherm.com/sites/default/files/2021-03/Tutorial_LT02_13CR_en.mp4

Burnout Furnaces

Reliability in the burning out of muffles and speed investments as well as a long service life make these burnout furnaces the perfect choice for daily work in the dental laboratory.

- Dual shell housing made of textured stainless steel sheets with additional fan cooling for low surface temperature
- Exclusive use of insulation materials without categorization according to EC Regulation No 1272/2008 (CLP). This explicitly means that alumino silicate wool, also known as “refractory ceramic fiber” (RCF), which is classified and possibly carcinogenic, is not used.
- Solid state relays provide for lownoise operation
- Defined application within the constraints of the operating instructions
- 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 documention 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

Furnace Group	Model	Page
Burnout furnaces for burn-out of muffles and speed investment material	L(T) ..	22
Compact burnout furnaces	LE ..	24
Accessories for burnout furnaces		25

Burnout Furnaces
for Burn-Out of Muffles and Speed Investment Material

These burnout furnaces are the perfect choice for daily work in the dental laboratory. These furnaces stand for excellent workmanship, advanced, attractive design and highest level of reliability. They are perfectly suitable for burnout of muffles and also for speed investments. These furnaces come equipped with either a flap door or lift door at no extra charge. The burnout furnaces come with a fiber insulation for 1100 °C or 1200 °C.

Burnout furnace LT 5/12

Standard Equipment

- Tmax 1100 °C or 1200 °C
- Heating from two sides by ceramic heating plates provides for an optimal temperature uniformity
- Thermocouple type N (1100 °C) or type S (1200 °C)
- Ceramic heating plates with integral heating element which is safeguarded against fumes and splashing, and easy to replace
- Optional flap door (L) which can be used as work platform or lift door (LT) with hot surface facing away from the operator
- Adjustable air inlet integrated in door (see illustration)
- Exhaust air outlet in rear wall of furnace
- Solid state relays provide for low-noise operation
- For maximum number of chargeable muffles in the furnace models see page 23
- Controller with touch operation B510 (5 programs with each 4 segments) resp. controller R7 for L 1/12 (adjustable for one temperature), alternative controllers see page 34
- MyNabertherm App for online monitoring of the firing on mobile devices for free download see page 36

Burnout furnace L 3/11 with casting muffle

Additional Equipment

- Chimney, chimney with fan or catalytic converter (not for L 1 and L 15). For burn-out of muffles and speed investment materials we recommend the use of a catalyst, see page 25
- Over-temperature limiter with adjustable cutout temperature as temperature limiter to protect the furnace and load
- Protective gas connection to purge with non-flammable protective or reaction gases (not available in combination with chimney, chimney with fan or catalytic converter), not gas tight
- Manual or automatic gas supply system
- Charging rack with closed or perforated trays for loading the furnace in two levels incl. holder for inserting/removing the trays up to a max. temperature of 800 °C and a max. loading weight of 2 kg for the L(T) 9/11 respectively 3 kg for the L(T) 15/11
- Please see page 25 for more accessories

Burnout furnace L 3/12

Burnout furnace L 3/11 with flap door

Maximum Chargeable Number of Burnout Muffles

The table below indicates the maximum number of burnout out muffles that can be charged in our different muffle furnaces.

Model	Muffle type			
	Size 1 x (Ø 37 mm)	Size 3 x (Ø 55 mm)	Size 6 x (Ø 72 mm)	Size 9 x (Ø 88 mm)
LE 1/11 (see page 24)	6	4	1	1
LE 2/11 (see page 24)	8	6	2	2
LE 6/11 (see page 24)	20	9	4	2
LE 14/11 (see page 24)	35	20	12	6
LE 24/11 (see page 24)	56	28	16	9
L 1/12	6	4	1	1
L(T) 3/..	12	6	2	2
L(T) 5/..	20	9	4	2 - 3
L(T) 9/..	36	16	9	4
L(T) 15/..	54	24	12	6

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Temperature uniformity of +/− 5K in the empty workspace[5]			Connected load	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H[3]	w	d	h	in kW	connection*	in kg	in min[4]
L(T) 3/11	1100	160	140	100	3	385	330	405+155	110	50	50	1.2	1-phase	20	40
L(T) 5/11	1100	200	170	130	5	385	390	460+205	170	80	90	2.4	1-phase	30	50
L(T) 9/11	1100	230	240	170	9	415	455	515+240	180	150	120	3.0	1-phase	35	65
L(T) 15/11	1100	230	340	170	15	415	555	515+240	180	250	120	3.2	1-phase	40	75
L 1/12	1200	90	115	110	1	290	280	430	45	60	40	1.5	1-phase	10	25
L(T) 3/12	1200	160	140	100	3	385	330	405+155	110	50	50	1.2	1-phase	20	45
L(T) 5/12	1200	200	170	130	5	385	390	460+205	170	80	90	2.4	1-phase	30	60
L(T) 9/12	1200	230	240	170	9	415	455	515+240	180	150	120	3.0	1-phase	35	75
L(T) 15/12	1200	230	340	170	15	415	555	515+240	180	250	120	3.2	1-phase	40	85

[1]Recommended working temperature for processes with longer dwell times is 1000 °C (L../11) rsp. 1100 °C (L../12)
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Including opened lift door (LT models)
[4]Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)
[5]Temperature uniformity of +/− 5 K with closed fresh-air inlet in empty work space according to DIN 17052-1 at working temperatures above 800 °C

*These furnaces are available for main voltage of 110 V - 120 V (up to 1,5 kW) resp. 200 V - 240 V, 1/N/PE or 2/PE

Adjustable air inlet integrated in the door

Over-temperature limiter

Maximum chargeable number of burnout muffles see page 23

Compact Burnout Furnaces

With their unbeatable price/performance ratio, these compact burnout furnaces are optimally suited for burnout in the dental laboratory. They convince by very fast possible heating ramps and attractive design. Quality features like the dual shell housing of stainless steel, their compact, lightweight design, or the heating elements installed in quartz glass tubes make this burnout furnace a reliable partner for your dental application.

Burnout furnace LE 6/11

Standard Equipment

- Tmax 1100 °C
- Heating from two sides from heating elements protected in quartz glass tubes
- Fast heating times (see table)
- Maintenance-friendly replacement of heating elements and insulation
- Housing coated in RAL 9003
- Flap door which can also be used as a work platform
- Exhaust air outlet in rear wall
- Solid state relays provide for low-noise operation
- Compact dimensions and light weight
- Controller mounted under the door to save space
- For maximum number of chargeable muffles in the furnace models see page 23
- Controller R7 (adjustable for one temperature), controls description see page 34

Additional Equipment

- Chimney, chimney with fan or catalytic converter (not for LE 1 and LE 2). For burn-out of muffles and speed investment materials we recommend the use of a catalyst, see page 25
- Please see page 25 for more accessories

Model	Tmax	Inner dimensions in mm			Volume	Outer dimensions[2] in mm			Temperature uniformity of +/– 5K in the empty workspace[4]			Connected	Electrical	Weight	Heating time
	in °C[1]	w	d	h	in l	W	D	H	w	d	h	load in kW	connection*	in kg	in min[3]
LE 1/11	1100	90	115	110	1	290	280	410	40	65	60	1.6	1-phase	15	10
LE 2/11	1100	110	180	110	2	330	390	410	60	130	60	1.9	1-phase	20	15
LE 6/11	1100	170	200	170	6	390	440	470	120	150	120	2.0	1-phase	27	30
LE 14/11	1100	220	300	220	14	440	540	520	170	250	170	3.2	1-phase	35	35
LE 24/11	1100	260	330	280	24	490	570	590	200	270	230	3.5	1-phase	42	40

[1]Recommended working temperature for processes with longer dwell times is 1050 °C
[2]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.
[3]Heating time of the empty and closed furnace up to Tmax –100 K (connected to 230 V 1/N/PE)
[4]Temperature uniformity of +/– 5 K with closed fresh-air inlet in empty work space according to DIN 17052-1 at working temperatures above 800 °C

*These furnaces are available for main voltage of 110 V - 120 V resp. 200 V - 240 V, 1/N/PE or 2/PE

Burnout furnace LE 1/11

Maximum chargeable number of burnout muffles see page 23

Heating elements protected in quartz glass tubes

Accessories for Bournout Furnaces

Article No.: 631000140

Exhaust Vent

Exhaust vent for collection and upstream direction of escaping gases

Article No.: 631000812

Chimney with Fan

Exhaust gases are better removed from the furnace and discharged. The B500 - P580 controllers can be used to activate the fan automatically (not for models L 1/12, LE 1/11, LE 2/11).*

Article No.: 631000166

Catalytic Converter with Fan

Organic components are catalytically cleaned at about 600 °C, broken into carbon dioxide and water vapour. Irritating odors are thus largely eliminated. The B500 - P580 controllers can be used to switch the catalytic converter automatically (not for models L(T) 9/14, L(T) 15.., L 1/12, LE 1/11, LE 2/11).*

* Note: If other controller types are used an adapter cable for connection to mains supply has to be ordered separately. The device will be activated by plugging in the socket.

Select between different **bottom plates** and **collecting pans** for protection of the furnace and easy loading (for models L, LT, LE on pages 22 - 24). Steel collecting pans may deform/distort under heat. For batches that are sensitive to tipping, ceramic shelves to protect the furnace bottom are recommended.

Ceramic Ribbed Plate, Tmax 1200 °C

Ceramic Collecting Pan, Tmax 1300 °C

Stainless Steel Collecting Pan, Tmax 1100 °C

For models	Ceramic ribbed plate		Ceramic collecting pan		Stainless steel collecting pan (Material 1.4828)	
	Articel No.	Dimensions in mm	Articel No.	Dimensions in mm	Articel No.	Dimensions in mm
L 1, LE 1	691601835	110 x 90 x 12.7	-	-	691404623	85 x 100 x 20
LE 2	691601097	170 x 110 x 12.7	691601099	100 x 160 x 10	691402096	110 x 170 x 20
L 3, LT 3	691600507	150 x 140 x 12.7	691600510	150 x 140 x 20	691400145	150 x 140 x 20
LE 6	691600508	190 x 170 x 12.7	691600511	190 x 170 x 20	6000095954	160 x 200 x 20
L 5, LT 5	691600508	190 x 170 x 12.7	691600511	190 x 170 x 20	691400146	190 x 170 x 20
L 9, LT 9, N 7	691600509	240 x 220 x 12.7	691600512	240 x 220 x 20	691400147	240 x 220 x 20
LE 14	691601098	210 x 290 x 12.7	-	-	691402097	210 x 290 x 20
L 15, LT 15, N 11	691600506	340 x 220 x 12.7	-	-	691400149	230 x 330 x 20

General Accessories

Article No.:
493000004

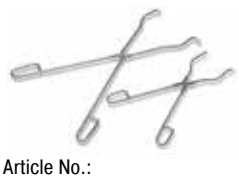
Gloves, Tmax 650 °C

For protection of the operator when loading or removing hot materials

Article No.:
491041101

Gloves, Tmax 700 °C

For protection of the operator when loading or removing hot materials



Article No.:
493000002 (300 mm)
493000003 (500 mm)

Charing Tongs

For easy loading and unloading of the furnace

Chamber Furnaces for Annealing after Laser Sintering

The chamber furnaces for stress relief annealing after laser sintering combine excellent quality, an attractive design and an unbeatable price/performance ratio.

- Dual shell housing made of textured stainless steel sheets with additional fan cooling for low surface temperature
- Exclusive use of insulation materials without categorization according to EC Regulation No 1272/2008 (CLP). This explicitly means that alumino silicate 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
- 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 documention 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

Furnace Group	Model	Page
Chamber furnace systems N ../H	N ../H	28
Chamber furnace systems LH	LH ..	29
Protective gas boxes for models N 7/H - N 41/H		30
Protective gas boxes for models LH 15/12 - LH 60/12		31

Annealing After Laser Sintering

Chamber furnace Systems N 7/H - N 41/H with their low but deep furnace chamber are particularly suitable for smaller batches. The process in these furnaces can be carried out exactly as in the chamber furnace systems LH 15/12 - LH 60/12.

System with chamber furnace N 41/H and protective gas box

Standard Equipment

- Tmax 1150 °C
- The recommended working temperature is max. 1100 °C. Higher wear and tear of the protective gas box has to be expected at higher working temperatures up to 1150 °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
- Multi-layer insulation with high-quality lightweight refractory bricks in the furnace chamber
- Exhaust opening in the side of the furnace, or on back wall of chamber furnace system N 41/H and higher
- Chamber furnace systems N 7/H - N 17/HR are designed as tabletop models
- Base included with chamber furnace system N 41/H
- Protective gas boxes for inert gas atmosphere with additional thermocouple, type K
- Solenoid valve, controlled via the extra function of the controller P570
- Charge control for measuring the temperature directly at the load in the gas supply box
- Charging plate and annealing and hardening foils
- Controller with touch operation P570 (50 programs with each 40 segments), controls description see page 34

Further information about the accessories for inert gas applications can be found on the following pages.

Model	Tmax	Inner dimensions protective gas box in mm			Outer dimensions in mm³			Process flush rate	Connected load	Electrical	Weight	Heating time
	°C	w	d	h	W	D	H	l/min	kW	connection*	in kg	in min[2]
N 7/H System	1150	180	190	90	800	650	600	5 - 8	3.0	1-phase	60	320
N 11/H System	1150	180	290	90	800	750	600	5 - 8	3.5	1-phase	70	320
N 11/HR System	1150	180	290	90	800	750	600	5 - 8	5.5	3-phase[1]	70	70
N 17/HR System	1150	180	440	90	800	900	600	5 - 8	6.4	3-phase[1]	90	110
N 31/H System	1150	280	230	200	1040	1100	1340	10 - 15	15,0	3-phase	210	90
N 41/H System	1150	280	380	200	1040	1250	1340	10 - 15	15.0	3-phase	260	105

[1]Heating only between two phases

*Please see page 38 for more information about supply voltage

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

[3]External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

Chamber furnace system N 7/H with protective gas box

Charging plate included in scope of delivery

Protective gas box included in scope of delivery

Annealing After Laser Sintering

The chamber furnace systems LH 15/12 - LH 60/12 have proven themselves for many years as professional chamber furnaces. For stress relief annealing after laser sintering, the furnaces are equipped with a protective gas box for non-flammable protective gas, e.g. argon, and a manual protective gas supply with solenoid valve. The design with gas supply box is a cost-effective alternative to retort furnaces and is suitable for many processes. The batch to be annealed is wrapped in annealing/hardening foil during the process to protect it from oxidation and decarburization. To protect the bottom insulation of the furnace from mechanical stress, a charging plate is required when using a gas supply box.

Chamber furnace system LH 60/12 with manual lift door and protective gas box for non-flammable protective or reactive gases

Standard Equipment

- Tmax 1200 °C
- Recommended operating temperatures up to 1100 °C, at operating temperatures up to 1150 °C increased wear of the protective gas box must be expected
- 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
- Multi-layered insulation of light refractory bricks and special backup insulation
- Motorized exhaust air flap
- Adjustable air inlet in furnace floor
- Base included
- Protective gas boxes for inert gas atmosphere with additional thermocouple, type K
- Solenoid valve, controlled via the extra function of the controller P570
- Charge control for measuring the temperature directly at the load in the gas supply box
- Charging plate and annealing and hardening foils
- Controller with touch operation P570 (50 programs with each 40 segments), controls description see page 34

Model	Tmax furnace in °C	Inner dimensions protective gas box in mm w	d	h	Outer dimensions in mm³ W	D	H	Process flush rate l/min	Heating power in kW	Electrical connection*	Weight in kg	Heating time in min²
LH 15/12 System	1200	100	100	100	680	860	1230	10 - 15	5.0	3-phase¹	170	44
LH 30/12 System	1200	170	170	170	710	930	1290	10 - 15	7.0	3-phase¹	200	60
LH 60/12 System	1200	250	250	250	790	1080	1370	10 - 15	8.0	3-phase	300	85

¹Heating only between two phases
²Heating time of the empty and closed furnace up to Tmax −100 K (connected to 230 V 1/N/PE rsp. 400 V 3/N/PE)
³External dimensions vary when furnace is equipped with additional equipment. Dimensions on request.

*Please see page 38 for more information about supply voltage

Gas panel for one non-flammable protective or reactive gas (N_2, Ar, He, CO_2, air, forming gas)

Chamber furnace LH 30/12

Parallel swinging door for opening when hot

Equipment for Annealing After Laser Sintering
Protective Gas Boxes for Models N 7/H - N 41/H

Box with protective gas connection

Protective Gas Box made of 1.4841

The protective gas boxes with gas inlet and outlet are neccessary for annealing of frameworks made of Cobalt-Chromium after laser sintering. The gassing box will be flushed with non-flammable inert gases, such as argon.

The gas box made of heat-resistant material 1.4841 (DIN) is supplied with cover, sealed with ceramic fiber, protective gas inlet and outlet through the upper furnace collar and sealing profile as well as incl. quick coupling with 3/8“ hose connection. The scope of delivery also includes a batch thermocouple type K, which can be used for charge control. The gas supply box can be used for temperatures up to 1100 °C. For working temperatures up to 1150 °C we offer gas boxes made of 2.4633 (DIN).

Gas Feed Fitting with Solenoid Valve

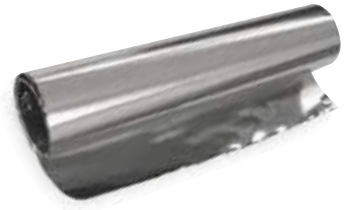
The protective gas box, described above, is additionally equipped with manual gas feed fitting and solenoid valve for gas bottles.

Included is a pressure reducing valve with built-in flow meter, indicating the bottle pressure, which is controlled by the extra function of the controller. The built-in flow meter with float ball allows a good readability of the gas flow. The inlet pressure is 200 bar, the outlet pressure equals to 4 bar. Included in the delivery scope is a 4 m long connecting tube 3/8“ and a screw connection for gas bottles.

Charging plate

Charge Control for the Protective Gas Box

The heating and cooling processes can be individually adapted to the charge in the protective gas box. The temperature in the protective gas box is measured using an additional thermocouple. With the P470 controller, the furnace chamber temperature and the temperature inside the protective gas box are compared and the furnace chamber temperature is controlled in such a way that the desired temperature curve in the protective gas box is maintained.



Stainless steel heat treating foil

Annealing/Hardening Foils and Charging Plates

To protecting the furnace floor against mechanical damage a charging plate made of 1.4841 raw material is neccessary. This plate has a three-side edging for an maximum temperatures of 1100 °C.

For protection the charge against oxidation and decarbonization we offer annealing and hardening foils for max. working temperatures up to 1200 °C.

Equipment for Annealing After Laser Sintering
Protective Gas Boxes for Models LH 15/12 - LH 60/12

Protective gas box for furnaces with hinged door

Protective Gas Boxes with Loading from the Top

Due to the high interior of the chamber furnaces LH 15/12 - LH 60/12 with gas supply box, these models are ideally suited for higher batches during stress relief annealing after laser sintering of cobalt chrome. The gas supply boxes have a standard batch thermocouple type K, which can be used for charge control.

The gas supply box is made of heat-resistant material 1.4841 (DIN) and can be used up to a maximum temperature of 1100 °C. For working temperatures up to 1150 °C we offer gas boxes made of 2.4633 (DIN). The lid is equipped with a fiber seal and a locking bolt. The boxes have a lid for loading from above, protective gas inlet and outlet.

The protective gas pipe runs through the floor into the box. This is used to flush the box with non-flammable protective gases such as argon. The protective gas inlet and outlet is guided through the furnace collar on the left in the case of a furnace with hinged door, and through the lower furnace collar in the case of the lift door version. For the protective gas connection, a quick coupling with hose connection (inner diameter 9 mm) is included in the scope of delivery.

The scope of delivery also includes a charge thermocouple type K, which can be used for charge control. The gas supply box can be used for temperatures up to 1100 °C. For working temperatures up to 1150 °C we offer gas supply boxes made of 2.4633 (DIN).

Article no.	Furnace	Inner dimensions in mm			Outer dimensions in mm[1]			Charging method
		w	d	h	W	D	H	of the box
631001276	LH 15/..	100	100	100	165	182	166	draw hook
631001277	LH 30/..	170	170	170	235	252	236	draw hook
631001278	LH 60/..	250	250	250	315	332	316	draw hook

Article no. 601655055, 1 set of fiber insulation cord, 5 strips of 610 mm each
Work space = box inner dimensions: - 30 mm to all sides
Larger boxes and custom dimensions available upon request

[1] Without piping

Protective gas box which stays in the furnace

Protective Gas Boxes with Charging from the Front

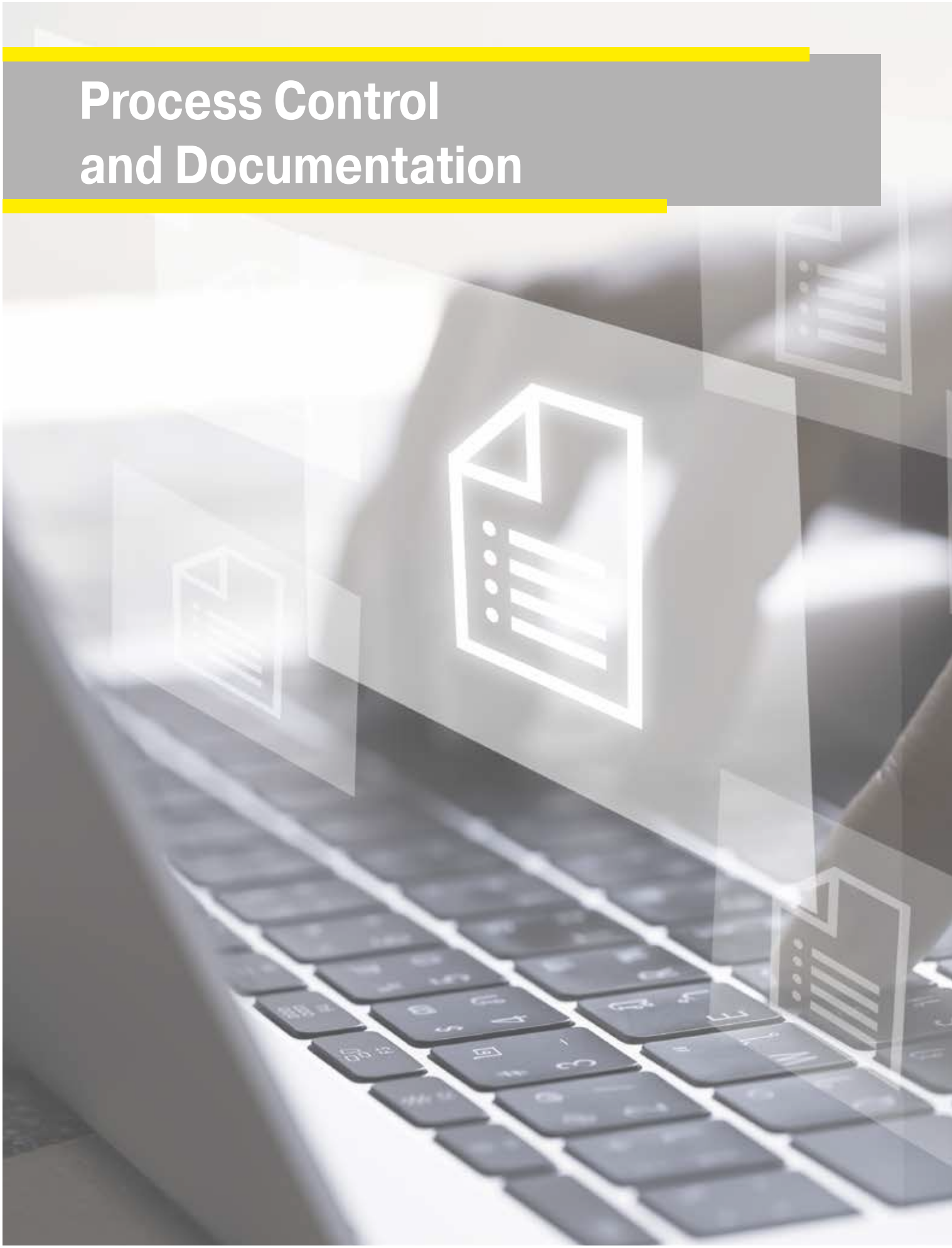
Design as the described protective gas boxes, but with charging from the front. These protective gas boxes remain in the oven and are equipped with a lid that can be opened to the front. After the lid has been opened, the batch can be removed directly.

Article no.	Furnace	Inner dimensions in mm			Outer dimensions in mm[1]			Charging method
		w	d	h	W	D	H	of the box
631001310	LH 15/..	100	100	100	170	148	194	-
631001311	LH 30/..	170	170	170	240	218	264	-
631001312	LH 60/..	250	250	250	320	298	344	-

Article no. 601655055, 1 set of fiber insulation cord, 5 strips of 610 mm each
Work space = box inner dimensions: - 30 mm to all sides
Larger boxes and custom dimensions available upon request

[1] Without piping

Process Control and Documentation



Nabertherm Controller Series 500

The controller series 500 impresses with its unique scope of performance and intuitive operation. In combination with the free "MyNabertherm" smartphone app, the operation and monitoring of the furnace is even easier and more powerful than ever before. The operation and programming takes place via a high-contrast, large touch panel, which shows exactly the information that is relevant at the moment.

Standard Equipment

- Transparent, graphic display of the temperature curves
- Clear presentation of the process data
- 24 operating languages selectable
- Consistent, attractive design
- Easily understandable symbols for many functions
- Precise and accurate temperature control
- User levels
- Program status display with estimated end time and date
- Documentation of the process curves on USB storage medium in .csv file format
- Service information can be read out via USB stick
- Clear presentation
- Plain text display
- Configurable for all furnace families
- Can be parameterized for the different processes

Highlights

In addition to the well-known and matured controller functions, the new generation offers you some individual highlights. Here is an overview of the most important ones for you:

Modern Design

Colored display of temperature curves and process data

Easy Programming

Simple and intuitive program entry via touch panel

Integrated Help Function

Information on various commands in plain text

Program Management

Temperature programs can be saved as favorites and in categories

Segment Player

Detailed overview of process information including setpoint, actual value and switched functions

Wi-Fi-Capable

Connection with the MyNabertherm app

Intuitive touch screen

Easy program entry and control

Precise temperature control

User levels

Process documentation on USB

Further information on Nabertherm controllers, process documentation and tutorials on operation can be found on our website:
https://nabertherm.com/en/series-500

MyNabertherm App for Mobile Monitoring of Process Progress

MyNabertherm app – the powerful and free digital accessory for Nabertherm 500 Series Controllers. Use the app for convenient online progress monitoring of your Nabertherm furnaces – from your office, while on the way or from wherever you wish. The app always keeps you in the picture. Just like the controller itself, the app is also available in 24 languages.

Convenient monitoring of one or multiple Nabertherm furnaces simultaneously

Display of program progress for each furnace

Easy to contact

App-Functions

- Convenient monitoring of one or multiple Nabertherm furnaces simultaneously
- Clear presentation as a dashboard
- Individual overview of a furnace
- Display of active/inactive furnaces
- Operating status
- Current process data

Display of Program Progress for Each Furnace

- Graphical representation of the program progress
- Display of furnace name, program name, segment information
- Display of start time, program run time, remaining run time
- Display of additional functions such as fresh-air fan, exhaust air flap, gassing, etc.
- Operating modes as symbol

Push Notifications in Case of Malfunctions and at Program End

- Push notification on the lock screen
- Display of malfunctions with an associated description in the individual overview and in a message list

Contact with Service Possible

- Stored furnace data facilitate rapid support for you

Requirements

- Connection of the furnace to the Internet via the customer‘s Wi-Fi
- For mobile devices with Android (from version 9) or IOS (from version 13)

Monitoring of Nabertherm furnaces with 500 series touch panel controller for Arts & Crafts, laboratory, dental, thermal process technology, advanced materials and foundry applications.

Available in 24 languages

Push notifications in case of malfunctions

Clear contextual menu

Any addition of Nabertherm furnaces

Everything on display in the new Nabertherm app for the new controller series 500. Get the most out of your furnace with our app for iOS and Android. Don't hesitate to download it now.

Download on the App Store

GET IT ON Google Play

Functions of the Standard Controllers

	R7	3216	3208	B500/ B510	C540/ C550	P570/ P580	3504	H500	H1700	H3700	NCC
Number of programs	1	1		5	10	50	25	20	20	20	100
Segments	1	8		4	20	40	500[3]	20	20	20	20
Extra functions (e. g. fan or autom. flaps) maximum				2	2	2-6	2-8[3]	3[3]	6/2[3]	8/2[3]	16/4[3]
Maximum number of control zones	1	1	1	1	1	3	2[1,2]	1-3[3]	8	8	8
Drive of manual zone regulation				●	●	●					
Charge control/bath control						●	○	○	○	○	○
Auto tune		●	●	●	●	●	●				
Real-time clock				●	●	●		●	●	●	●
Graphic color display				●	●	●		4" 7"	7"	12"	22"
Graphic display of temperature curves (program sequence)											
Status messages in clear text			●	●	●	●	●	●	●	●	●
Data entry via touchpanel				●	●	●		●	●	●	
Entering program names (i.e.“Sintering“)				●	●	●			●	●	●
Keypad lock				●	●	●	●				
User levels				●	●	●		○	○	○	●
Skip-button for segment jump				●	●	●		●	●	●	●
Program entry in steps of 1 °C or 1 min.	●	●	●	●	●	●	●	●	●	●	●
Start time configurable (e. g. to use night power rates)				●	●	●		●	●	●	●
Switch-over °C/°F	○	○	○	●	●	●	○	●	●[3]	●[3]	●[3]
kWh meter				●	●	●					
Operating hour counter				●	●	●		●	●	●	●
Set point output			○	●	●	●	○		○	○	○
NTLog Comfort for HiProSystems: recording of process data on an external storage medium								○	○	○	
NTLog Basic for Nabertherm controller: recording of process data with USB-flash drive				●	●	●					
Interface for VCD software				○	○	○					
Malfunction memory				●	●	●		●	●	●	●
Number of selectable languages				24	24	24					
Wi-Fi-capable („MyNabertherm“ app)				●	●	●					

[1] Not for melt bath control
[2] Control of additional separate slave regulators possible
[3] Depending on the design

● Standard
○ Option

Mains Voltages for Nabertherm Furnaces

1-phase: all furnaces are available for mains voltages from 110 V - 240 V at 50 or 60 Hz.

3-phase: all furnaces are available for mains voltages from 200 V - 240 V or 380 V - 480 V, at 50 or 60 Hz.

The connecting rates in the catalog refer to the standard furnace with 400 V (3/N/PE) respectively 230 V (1/N/PE).

Which Controller for Which Furnaces

	LHT .01/16 Turbo Fire	LHT ... LB Speed	LHT ../17 D	LHTCT ../16	LT 02/13 CR	L 1/12	L 3/11 - L 15/12	LE ../11	N ../H	LH ../12
Catalog page	6	8	10	12	18	22	22	24	28	29
Controller										
R7						●		●		
P570									●	●
B510							●			
C550				●	●		○			
P580	●	●	●				○			

Process Data Storage and Data Input via PC

There are various options for evaluation and data input the processes for optimal process documentation and data storage. The following options are suitable for data storage when using the standard controllers.

Data Storing of Nabertherm Controllers with NTLog Basic

NTLog Basic allows for recording of process data of the connected Nabertherm Controller (B500, B510, C540, C550, P570, P580) on a USB stick. The process documentation with NTLog Basic requires no additional thermocouples or sensors. Only data recorded which are available in the controller. The data stored on the USB stick (up to 130,000 data records, format CSV) can afterwards be evaluated on the PC either via NTGraph or a spreadsheet software used by the customer (e.g. Excel™ for MS Windows™). For protection against accidental data manipulation the generated data records contain checksums.

Visualization with NTGraph for MS Windows™ for Single-Zone Controlled Furnaces

The process data from NTLog can be visualized either using the customer‘s own spreadsheet program (e.g. Excel™ for MS Windows™) or NTGraph for MS Windows™ (Freeware). With NTGraph Nabertherm provides for an additional user-friendly tool free of charge for the visualization of the data generated by NTLog. Prerequisite for its use is the installation of the program Excel™ for MS Windows™ (from version 2003). After data import presentation as diagram, table or report can be chosen. The design (color, scaling, reference labels) can be adapted by using prepared sets. NTGraph is available in eight languages (DE/EN/FR/ES/IT/CN/RU/PT). In addition, selected texts can be generated in other languages.

Software NTEdit for MS Windows™ for Entering Programs on the PC

By using the software NTEdit for MS Windows™ (Freeware) the input of the programs becomes clearer and thus easier. The program can be enttered on customers PC and then be imported into the controller (B500, B510, C540, C550, P570, P580) with a USB stick. The display of the set curve is tabular or graphical. The program import in NTEdit is also possible. With NTEdit Nabertherm provides a user-friendly free tool. A prerequisite for the use is the client installation of Excel™ for MS Windows™ (from version 2007). NTEdit is available in eight languages (DE/EN/FR/ES/IT/CN/RU/PT).

NTGraph, a freeware for the easy-to-read analysis of recorded data using Excel™ for MS Windows™

Recording of process data of the connected controller via USB stick

Process input via the NTEdit software (freeware) for MS Windows™

Process Data Storage
VCD-software for visualization, control and documentation

Documentation and reproducibility are more and more important for quality assurance. The powerful VCD software represents an optimal solution for single multi furnace systems as well as charg documentation on the basis of Nabertherm controllers.

The VCD software is used to record process data of the series 500 and series 400 as well as various further Nabertherm controllers. Up to 400 different heat treatment programs can be stored. The controllers are started and stopped via the software at a PC. The process is documented and archived accordingly. The data display can can be carried-out in a diagram or as data table. Even a transfer of process data to Excel™ for MS Windows™ (.csv format *) or the generation of reports in PDF format is possible.

Example lay-out with 3 furnaces

Features

- Available for controllers series 500 - B500/B510/C540/C550/ P570/P580, series 400 - B400/B410/C440/C450/P470/P480, Eurotherm 3504 and various further Nabertherm controllers
- Suitable for operating systems Microsoft Windows 7/8/10/11
- Simple installation
- Setting, Archiving and print of programs and graphics
- Operation of controllers via PC
- Archiving of process curves from up to 16 furnaces (also multi-zone controlled)
- Redundant saving of archives on a server drive
- Higher security level due to binary data storage
- Free input of charge date with comfortable search function
- Possibility to evaluate data, files exportable to Excel™ for MS Windows™
- Generation of a PDF-report
- 24 languages selectable

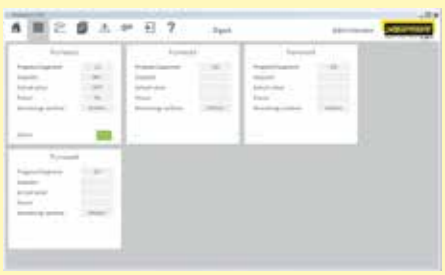
Extension Package 1 for display of an additional temperature measuring point, independant of the furnace controls

- Connection of an independent thermocouple, type S, N or K with temperature display on a supplied C6D display, e. g. for documentation of charge temperature
- Conversion and transmission of measured values to the VCD software
- For data evaluation, please see VCD-software features
- Display of measured temperature directly on the extension package

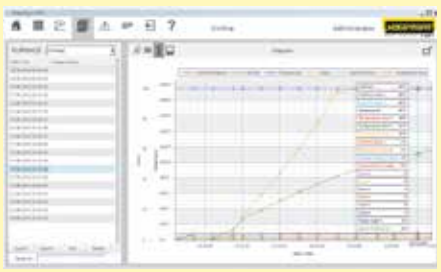
Extension Package 2 for the connection of up to three, six or nine measuring point, independant of the furnace controls

- Connection of three thermocouples, tpye K, S, N or B to the included connecting box
- Possible extension of up to two or three connecting boxes with up to nine measuring points
- Conversion and transmission of measured values to the VCD software
- Data evaluation, see VCD features

VCD Software for Control, Visualisation and Documentation



Graphic display of main overview (version with 4 furnaces)



Graphic display of process curve

Spare Parts and Customer Service — Our Service Makes the Difference

For many years the name **Nabertherm** has been standing for top quality and durability in furnace manufacturing. To secure this position for the future as well, Nabertherm offers not only a first-class spare parts service, but also excellent customer service for our customers. Benefit from more than 70 years of experience in furnace construction.

In addition to our highly qualified service technicians on site, our service specialists in Lilienthal are also available to answer your questions about your furnace. We take care of your service needs to keep your furnace always up and running. In addition to spare parts and repairs, maintenance and safety checks as well as temperature uniformity measurements are part of our service portfolio. Our range of services also includes the modernization of older furnace systems or new linings.

The needs of our customers always have highest priority!

- Very fast spare parts supply, many standard spare parts in stock
- Worldwide customer service on site with its own service points in the largest markets
- International service network with long-term partners
- Highly qualified customer service team for quick and reliable repair of your furnace
- Commissioning of complex furnace systems
- Customer training in function and operation of the system
- Temperature uniformity measurements, also according to standards like AMS2750F (NADCAP)
- Competent service team for fast help on the phone
- Safe teleservice for systems with PLC controls via modem, ISDN or a secured VPN line
- Preventive maintenance to ensure that your furnace is ready for use
- Modernization or relining of older furnace systems

Contact us:

Spare parts	spares@nabertherm.de	+49 (4298) 922-474
Customer service	service@nabertherm.de	+49 (4298) 922-333

The whole World of Nabertherm: www.nabertherm.com

Please visit our website **www.nabertherm.com** and find out all you want to know about us - and especially about our products.

In addition to current information and exhibition dates, there is of course the possibility of direct contact or an authorized dealer from our worldwide dealer network.

Professional Solutions for:

- Thermal Process Technology
- Additive Manufacturing
- Advanced Materials
- Fiber Optics/Glass
- Foundry
- Laboratory
- Dental
- Arts & Crafts

Nabertherm

MORE THAN HEAT 30 - 3000 °C

Headquarters

Nabertherm GmbH
Bahnhofstr. 20
28865 Lilienthal, Germany
Tel +49 4298 922 0
contact@nabertherm.de

Sales Organisation

China
Nabertherm Ltd. (Shanghai)
No. 158, Lane 150, Pingbei Road, Minhang District
201109 Shanghai, China
Tel +86 21 64902960
contact@nabertherm-cn.com

France
Nabertherm SARL
20, Rue du Cap Vert
21800 Quetigny, France
Tel +33 6 08318554
contact@nabertherm.fr

Great Britain
Nabertherm Ltd., United Kingdom
Tel +44 7508 015919
contact@nabertherm.com

Italy
Nabertherm Italia
via Trento N° 17
50139 Florence, Italy
Tel +39 348 3820278
contact@nabertherm.it

Switzerland
Nabertherm Schweiz AG
Altgraben 31 Nord
4624 Härkingen, Switzerland
Tel +41 62 209 6070
contact@nabertherm.ch

Benelux
Nabertherm Benelux, The Netherlands
Tel +31 6 284 00080
contact@nabertherm.com

Spain
Nabertherm España
c/Marti i Julià, 8 Bajos 7ª
08940 Cornellà de Llobregat, Spain
Tel +34 93 4744716
contact@nabertherm.es

USA
Nabertherm Inc.
64 Reads Way
New Castle, DE 19720, USA
Tel +1 302 322 3665
contact@nabertherm.com

All other Countries: Follow
https://www.nabertherm.com/contacts

Reg No. K 9.1/03.22 (Englisch), information herein is subject to change without notice. Nabertherm assumes no liability for any errors that may appear in this document.