

Dental



Furnaces and Accessories

Sintering Furnaces for

Zirconia up to 1550 °C

Translucent Zirconia up to 1700 °C

CoCr Alloys up to 1200 °C

CAD/CAM Systems

Burnout Furnaces

Model Casting

Production Furnaces

www.nabertherm.com

■ Made
■ in
■ Germany



Made in Germany

Nabertherm with 350 employees worldwide have been developing and producing industrial furnaces for many different applications for over 60 years. As a manufacturer, Nabertherm offers the widest and deepest range of furnaces worldwide. 150,000 satisfied customers in more than 100 countries offer proof of our commitment to excellent design, quality and cost efficiency. Short delivery times are ensured due to our complete inhouse production and our wide variety of standard furnaces.

Setting Standards in Quality and Reliability

Nabertherm does not only offer the widest range of standard furnaces. Professional engineering in combination with inhouse manufacturing provide for individual project planning and construction of tailor-made thermal process systems with material handling and charging systems. Complete thermal processes are realized by customized system solutions.

Innovative Nabertherm control technology provides for precise control as well as full documentation and remote monitoring of your processes. Our engineers apply state-of-the-art technology to improve the temperature uniformity, energy efficiency, reliability and durability of our systems with the goal of enhancing your competitive edge.

Global Sales and Service Network – Close to you

Centralized engineering and manufacturing and decentralized sales and service define our strategy to live up to your needs. Long term sales and distribution partners in all important world markets ensure individual on-site customer service and consultation. There are various reference customers in your neighborhood who have similar furnaces or systems.



Large Customer Test Center

What furnace is the right choice for this specific process? This question cannot always be answered easily. Therefore, we have set up our modern test center which is unique in respect to size and variety. A representative number of furnaces is available for tests for our customers.

Customer Service and Spare Parts

Our professional service engineers are available for you world-wide. Due to our complete inhouse production, we can despatch most spare parts from stock over night or produce with short delivery time.

Experience in Many Fields of Thermal Processing

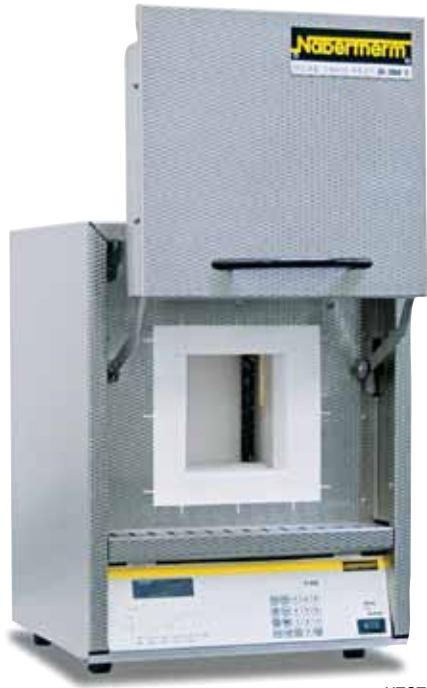
In addition to furnaces for laboratory, Nabertherm offers a wide range of standard furnaces and systems for many other thermal processing applications. The modular design of our products provides for customized solutions to your individual needs without expensive modifications.

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High-Temperature Furnaces with SiC Rod Heating for Sintering Zirconia



HTCT 01/16



HTCT 08/16 with lift door



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

HTCT 01/16 - HTCT 08/16

Designed as table model with SiC heating rods, these models offer numerous advantages when sintering zirconia. The large heating chamber, fast heating-up times and the missing chemical interactivity between the zirconia used and the heating elements as it is known from heating elements made of molybdenum disilicide make this model a good selection for the CAD/CAM processing of zirconia. The furnace controller can be freely programmed for the individual sintering of the zirconia material. The furnace is available in three different sizes. The 1-liter model is moreover designed for connection to the single-phase mains supply.

- Tmax 1550 °C
- High-quality fibre material, selected for the working temperature
- Housing made of sheets of textured stainless steel
- Dual shell housing for low external temperatures and high stability
- Optional flap door (HTC) which can be used as work platform or lift door (HTCT) with hot surface facing away from the operator (HTCT 01/16 only with lift door)
- Adjustable air intake opening in the furnace door, exhaust air opening in the roof
- Switching system with solid-state-relays, power tuned to the SiC rods
- Easy replacement of heating rods
- Controls description see page 14



Saggars with top lid



Spacers



Over-temperature limit controller

Additional equipment

- Over-temperature limit controller with manual reset for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load
- Square sagger for charging of up to three layers see page 13
- Spacer recommended to be placed under the bottom sagger for better temperature uniformity

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ³
		w	d	h		W	D	H ²				
HTCT 01/16	1600	110	120	120	1,5	340	300	460	3.5	single-phase	18	40
HTC, HTCT 03/16	1600	120	210	120	3,0	400	535	530	9.0	3-phase ¹	30	60
HTC, HTCT 08/16	1600	170	290	170	8,0	450	620	570	13.0	3-phase	40	60

¹Heating only between two phases

²Plus maximum 270 mm for models HTCT when open

*Please see page 14 for more information about supply voltage

³If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

High-Temperature Lift-Bottom Furnace with Retort, also for Sintering Translucent Zirconia up to 1700 °C

LHT 02/16 LBR - LHT 16/17 LBR

The models are perfectly suitable for sintering zirconia. The electrically driven lifting table simplifies the charging of the furnace to a considerable extent. The all-round heating of the cylindrical furnace chamber guarantees an even temperature distribution. Equipped with a ceramic retort between the charge and the heating elements, the crowns and bridges are protected from chemical contamination to the largest possible extent. The sintered object is put into saggars made of technical ceramic. Up to three saggars put on top of each other guarantee high productivity. As additional equipment, these furnaces may be equipped with a heating chamber cooling by means of compressed air in order to shorten the process cycles.

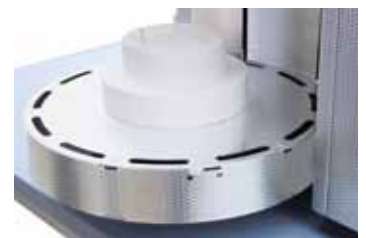
- Tmax 1600 °C or 1700 °C
- High-quality molybdenum disilicide heating elements
- Furnace chamber lined with first-class, durable fiber materials
- Outstanding temperature uniformity due to all-round furnace chamber heating
- Tubular plasma ceramic retort to prevent a certain level of contamination and to improve temperature uniformity
- Furnace chamber with a volume of 2 or 16 liters, table with large footprint
- Spacers to lift-up the saggars already installed in the table
- Precise, electric spindle drive with push button operation
- Housing made of sheets of textured stainless steel
- Adjustable air inlet through the floor
- Exhaust air vent in the roof
- Type B thermocouple
- Switchgear with thyristor
- Controls description see page 14

Additional equipment

- Over-temperature limit controller with manual reset for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the furnace and load
 - Square saggars for charging of up to three layers see page 13
 - Forced-Air Cooling Package for model LHT 02/LBR for shorter process cycles
- The forced-air cooling package can be installed in models LHT 02/16 LBR and LHT 02/17 LBR. The furnace will be equipped with a quick lock for compressed air and a valve which can be activated by means of the extra function in the controller. To protect the charge, the cooling air will be injected behind the ceramic retort in the furnace chamber. Cooling times can be cut by about 45 minutes.
- Process control and documentation with Controltherm MV software package, see page 15 ff



LHT 02/16 LBR with a set of saggars



Lift-bottom with adjustable air inlet



Saggars

Model	Tmax °C	Inner dimensions in mm		Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ¹
		Ø	h		W	D	H				
LHT 02/16 LBR	1600	Ø 120	130	2	540	610	740	3.0	single-phase	85	85
LHT 02/17 LBR	1700	Ø 120	130	2	540	610	740	3.0	single-phase	85	85
LHT 16/16 LBR	1600	Ø 260	260	16	650	1250	1980	12.0	3-phase	410	120
LHT 16/17 LBR	1700	Ø 260	260	16	650	1250	1980	12.0	3-phase	410	120

¹If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

*Please see page 14 for more information about supply voltage

High-Temperature Chamber Furnaces with MoSi₂ Heating Elements, also suitable for Sintering Translucent Zirconia up to 1700 °C



LHT 08/17



LHT 02/16

LHT 02/16 - LHT 08/18

The first-class workmanship using high-quality materials combined with ease of operation makes these models all-rounders for the dental laboratory. These chamber high-temperature furnaces are perfectly suited for the sintering of translucent zirconia units. The open molybdenum-disilicide heating elements and the large volume of the furnace chamber provide for short process cycles and high throughput. The zirconia units are positioned in ceramic saggars. Up to three saggars can be stacked into the furnace. The top saggar should be covered by a lid in order to minimize the risk of contamination.



Saggars with top lid



Spacers



Over-temperature limit controller

- Tmax 1600 °C, 1750 °C, or 1800 °C
- High-quality molybdenum disilicide heating elements
- Furnace chamber lined with first-class, durable fibre material
- Housing made of sheets of textured stainless steel
- Dual shell housing with additional fan cooling for low surface temperature
- Furnace sizes of 2, 4, or 8 liters
- With lift door, whereby the hot side is away from the operator
- Adjustable air inlet
- Exhaust air opening in the roof
- Type B thermocouple
- Switching system with phase-angle firing thyristors (SCRs)
- Controls description see page 14

Additional equipment

- Over-temperature limit controller with manual reset for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load
- Square saggar for charging of up to three layers see page 13
- Spacer recommended to be placed under the bottom saggar for better temperature uniformity
- Protective gas connection
- Manual or automatic gas supply system

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ²
		w	d	h		W	D	H ³				
LHT 02/16	1600	90	150	150	2	470	700	750+350	3.0	single-phase	75	30
LHT 04/16	1600	150	150	150	4	470	700	750+350	5.2	3-phase ¹	85	25
LHT 08/16	1600	150	300	150	8	470	850	750+350	8.0	3-phase ¹	100	25
LHT 02/17	1750	90	150	150	2	470	700	750+350	3.0	single-phase	75	60
LHT 04/17	1750	150	150	150	4	470	700	750+350	5.2	3-phase ¹	85	40
LHT 08/17	1750	150	300	150	8	470	850	750+350	8.0	3-phase ¹	100	40
LHT 02/18	1800	90	150	150	2	470	700	750+350	3.6	single-phase	75	75
LHT 04/18	1800	150	150	150	4	470	700	750+350	5.2	3-phase ¹	85	60
LHT 08/18	1800	150	300	150	8	470	850	750+350	9.0	3-phase ¹	100	60

¹Heating only between two phases

²If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

*Please see page 14 for more information about supply voltage

³Including opened lift door

Sintering Furnaces for CoCr Alloys



HTCT 01/16



LHT 02/17 LBR

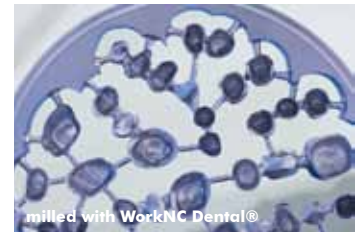


RHTC 80-450/15 with manual gassing system

The sintering of milled bridges and crowns made of cobalt chrome (CoCr) requires a furnace in which the heat treatment process can be carried out under inert gas. The requirements on the furnace may vary depending on the CoCr alloy.

Many applications can already be realized in a muffle furnace into which a special retort has been integrated. The charge is positioned in this retort and can be sintered under inert gas, e.g. nitrogen or argon. For processes requiring a completely gas-tight furnace chamber, special retort or tube furnaces can be used. If necessary, vacuum furnaces are also available for the specific process.

Depending on the furnace model, processes with working temperatures between 1200 °C and 1400 °C can be realized. The furnace size can be selected so that CoCr bridges with a diameter of up to 98 mm can be sintered without problems.

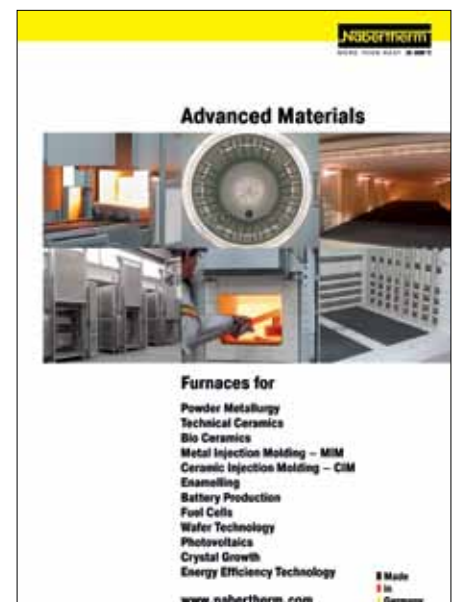


Gas-tight retort with inert gas inlet through the retort bottom

Production Furnaces for Debinding, Presintering or for Sintering

In addition to the furnaces shown for sintering in laboratory scale, Nabertherm also offers numerous solutions for production. For the production of zirconia blanks there are e.g. production systems that initially provide for the debinding followed by the presintering of the product. In these systems, highest precision with regard to temperature uniformity and reproducibility is of utmost importance in order to satisfy the requirements on the blank with respect to shrinkage and compliance with the later sintering temperature.

For the full sintering of milled crowns and bridges in production scale, Nabertherm offers high-temperature furnaces having a considerably larger capacity than the laboratory furnaces shown here. In this connection, please ask for our special "Advanced Materials" catalog.



Burnout Furnaces

Professional Furnaces with Flap Door or Lift Door



L 1/12



L 5/11



Adjustable air inlet integrated in the door

L 1/12 - LT 15/12

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. Furnaces L 3/11 - LT 15/12 come with a fibre insulation for 1100 °C or 1200 °C.

- Tmax 1100 °C or 1200 °C
- Heating from two sides by ceramic heating plates
- Ceramic heating plates with integral heating element which is safeguarded against fumes and splashing, and easy to replace
- Highly durable cured vacuum fibre module lining
- Housing made of sheets of textured stainless steel
- Dual shell housing for low external temperatures and high stability
- 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 chargable muffles in the furnace models see page 15
- Controls description see page 14

Additional equipment

- Chimney, chimney with fan or catalytic converter
- Over-temperature limit controller with manual reset for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load
- Protective gas connection on the rear wall of furnace
- Manual or automatic gas supply system
- Please see page 13 for more accessories
- Process control and documentation with Controltherm MV software package, see page 15 ff



Over-temperature limit controller



LT 15/12



LT 24/11



L(T) 3/..



L(T) 5/..



L(T) 9/..

Maximum Chargable Number of Burnout Muffles see page 15

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ²
Lift door		w	d	h		W	D	H ¹				
L, LT 3/11	1100	160	140	100	3	380	370	420	1.2	single-phase	20	60
L, LT 5/11	1100	200	170	130	5	440	470	520	2.4	single-phase	35	60
L, LT 9/11	1100	230	240	170	9	480	550	570	3.0	single-phase	45	75
L, LT 15/11	1100	230	340	170	15	480	650	570	3.6	single-phase	55	90
L 1/12	1200	90	115	110	1	250	265	340	1.5	single-phase	10	25
L, LT 3/12	1200	160	140	100	3	380	370	420	1.2	single-phase	20	75
L, LT 5/12	1200	200	170	130	5	440	470	520	2.4	single-phase	35	75
L, LT 9/12	1200	230	240	170	9	480	550	570	3.0	single-phase	45	90
L, LT 15/12	1200	230	340	170	15	480	650	570	3.6	single-phase	55	105

¹Including opened lift door

²If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

*Please see page 14 for more information about supply voltage



L 5/11 with gas supply system

Compact Burnout Furnaces



LE 1/11



LE 6/11

LE 1/11 - LE 14/11

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



LE 4/11

- Tmax 1100 °C, working temperature 1050 °C
- Heating from two sides from heating elements in quartz glass tubes
- Maintenance-friendly replacement of heating elements and insulation
- Multilayered insulation with fibre plates in the furnace chamber
- Housing made of sheets of textured stainless steel
- Dual shell housing for low external temperatures and high stability
- 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 in side space (under the door on the LE 1/11, LE 2/11 and LE 4/11 to save space)
- For maximum number of chargeable muffles in the furnace models see page 15
- Controls description see page 14



Maximum Chargeable Number of Burnout Muffles see page 15

Additional equipment

- Chimney, chimney with fan or catalytic converter
- Over-temperature limit controller with manual reset for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load
- Protective gas connection on the rear wall of furnace
- Manual gas supply system
- Please see page 13 for more accessories
- Process control and documentation with Controltherm MV software package, see page 15 ff



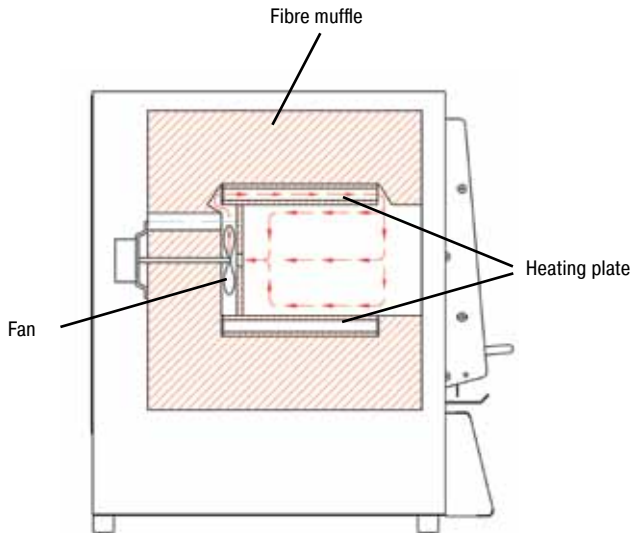
Over-temperature limit controller

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ¹
		w	d	h		W	D	H				
LE 1/11	1100	90	115	110	1	250	265	340	1,5	single-phase	10	10
LE 2/11	1100	110	180	110	2	275	380	350	1.8	single-phase	10	25
LE 4/11	1100	170	200	170	4	335	400	410	1.8	single-phase	15	35
LE 6/11	1100	170	200	170	6	510	400	320	1.8	single-phase	18	35
LE 14/11	1100	220	300	220	14	555	500	370	2.9	single-phase	25	40

¹If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

*Please see page 14 for more information about supply voltage

Burnout Furnaces with Integrated Air Circulation



LT 5/11HA with air circulation

LT 5/11HA - LT 15/11HA

The LT 5/11 HA - L 15/11 HA series is based on the burnout furnace L 3/11 ff.. They are additionally equipped with an air recirculation system which provides for perfect heat transfer to the muffles and very good temperature uniformity. In combination with the precisely working controller, they can be even used for Titanium implants. Especially in the low temperature range uniform heating rates are achieved.

- Tmax 1100 °C
- Heating from two sides by ceramic heating plates
- Ceramic heating plates with integral heating element which is safeguarded against splashing, and easy to replace
- Highly durable cured vacuum fibre module lining
- Housing made of sheets of textured stainless steel
- Dual shell housing for low external temperatures and stability
- With lift door (LT), whereby the hot side is away from the operator
- Exhaust air outlet in rear wall of furnace
- Solid state relays provide for lownoise operation
- Circulation fans for better heat transmission and distribution, particularly during heating and cooling
- For maximum number of chargeable muffles in the furnace models see page 15
- Controls description see page 14

Additional equipment

- Chimney, chimney with fan or catalytic converter
- Over-temperature limit controller with manual reset for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load
- Please see page 13 for more accessories



Air-circulation fan in rear wall of furnace



Maximum Chargeable Number of Burnout Muffles see page 15

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ²
		w	d	h		W	D	H ¹				
LT 5/11HA	1100	200	160	130	5	440	470	520+220	2.4	single-phase	36	60
LT 9/11HA	1100	230	230	170	9	480	550	570+290	3.0	single-phase	46	60
LT 15/11HA	1100	230	330	170	15	480	650	570+290	3.6	single-phase	56	75

¹Including opened lift door

²If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

*Please see page 14 for more information about supply voltage



Over-temperature limit controller

Burnout Furnaces with Brick Insulation



N 7/H as table-top model

N 7/H - N 17/HR

With their brick insulation and the robust table-top design, furnaces N 7/H - N 17/HR are the workhorses for the daily use in the dental laboratory. Heating elements in both sides and the bottom provide for excellent temperature uniformity even if the furnace is fully charged. The furnaces can be used for the burnout of muffles or for speed investments.

- Tmax 1280 °C
- Three-sided heating from both sides and the floor
- Heating elements on support tubes ensure free heat radiation and a long service life
- Floor heating protected by heat-resistant SiC plate
- Multilayer insulation with high-quality lightweight refractory bricks in the furnace chamber
- Exhaust opening in the side of the furnace
- Parallel swinging door which opens downward, or upward upon request
- For maximum number of chargable muffles in the furnace models see page 15
- Description of the control system see page 14



Maximum Chargable Number of Burnout Muffles see page 15

Additional Equipment

- Chimney, chimney with fan or catalytic converter
- Over-temperature limit controller with adjustable switch-off temperature for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load
- Protective gas connection on the rear wall of furnace
- Manual or automatic gas supply system
- Please see page 13 for more accessories

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg	Minutes to Tmax ²
		w	d	h		W	D	H				
N 7/H	1280	250	250	120	7	720	640	510	3,0	single-phase	60	180
N 11/H	1280	250	350	140	11	720	740	510	3,6	single-phase	70	180
N 11/HR	1280	250	350	140	11	720	740	510	5,5	3-phase ¹	70	120
N 17/HR	1280	250	500	140	17	720	890	510	6,4	3-phase ¹	90	120

¹Heating only between two phases

²If connected at 230 V 1/N/PE resp. 400 V 3/N/PE

*Please see page 14 for information on supply voltage

Accessories



Article No.:
631000140

Chimney for connection to an exhaust pipe.



Article No.:
631000812

Chimney with fan, to remove exhaust gas from the furnace better. The P 330 controller can be used to activate the fan automatically.



Article No.:
631000166

Catalytic converter with fan for removal of organic components from the exhaust air. Organic components are catalytically oxidized at about 600 °C, broken into carbon dioxide and water vapour. Irritating odors are thus largely eliminated. The P 330 controller can be used to switch the catalytic converter automatically.



Article No.:
699000279 (sagger)
699000985 (lid)

Square sagger for furnaces HTC and LHT, Tmax 1600 °C

The load is placed in ceramic saggars for optimal utilization of the furnace space. Up to three saggars can be stacked on top of each other in the furnace. Each sagger has cut-outs for better ventilation. The top sagger should be closed with a lid made of ceramics also.



Article No.:
699000280 (sagger)
699000984 (lid)

Round sagger (Ø 115 mm x 35 mm) for furnaces LHT/LB(R), Tmax 1600 °C

These saggars are perfectly suited for furnaces LHT/LB and LHT/LBR. The load is placed in the saggars. Up to three saggars can be stacked on top of each other in order to use the overall furnace chamber.



Article No.:
699000252

Spacers, Tmax 1600 °C

We recommend not to place the charge directly on the bottom of the furnace. Ceramic spacers can be put under the first sagger to provide for an optimal air flow under the charge with the result of an improved temperature uniformity.

Select between different **base plates** and **collecting pans** for protection of the furnace and easy loading (for models L, LT, LE, LV and LVT on pages 4 - 12).



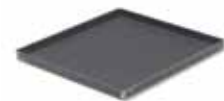
Ceramic ribbed plate, Tmax 1200 °C

for models	Article No.
L 1, LE 1	691601835
LE 2	691601097
L 3, LT 3, LV, LVT 3	691600507
LE 4, LE 6, L 5, LT 5, LV 5, LVT 5	691600508
L 9, LT 9, LV 9, LVT 9, N 7	691600509
LE 14	691601098
L 15, LT 15, LV 15, LVT 15, N 11	691600506



Ceramic collecting pan, Tmax 1300 °C

for models	Article No.
LE 2	691601099
L 3, LT 3, LV 3, LVT 3	691600510
LE 4, LE 6, L 5, LT 5, LV 5, LVT 5	691600511
L 9, LT 9, LV 9, LVT 9, N 7	691600512



Steel collecting pan, Tmax 1100 °C

for models	Article No.
L 1, LE 1	691404623
LE 2	691402096
L 3, LT 3, LV 3, LVT 3	691400145
LE 4, LE 6, L 5, LT 5, LV 5, LVT 5	691400146
L 9, LT 9, LV 9, LVT 9, N 7	691400147
LE 14	691402097
L 15, LT 15, LV 15, LVT 15, N 11	691400149

Heat-resistant **gloves** for protection of the operator when loading or removing hot materials, resistant to 650 °C or 900 °C.



Article No.:
493000004

Gloves, Tmax 650 °C.



Article No.:
491041101

Gloves, Tmax 900 °C.



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

Various **tongs** for easy loading and unloading of the furnace.

Process Control and Documentation



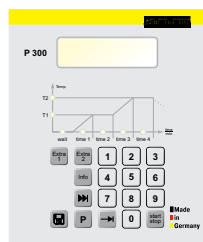
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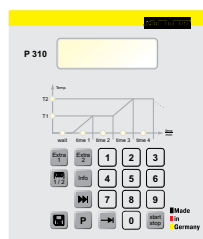
P 330



B 150



P 300



P 310

Nabertherm has many years of experience in the design and construction of both standard and custom control system. All controls are remarkable for their ease of use and even in the basic version have a wide variety of functions.

Standard Controllers

Our extensive line of standard controllers satisfies most customer requirements. Based on the specific furnace model, the controller regulates the furnace temperature reliably. The standard controllers are developed and fabricated within the Nabertherm group. When developing controllers, our focus is on ease of use. From a technical standpoint, these devices are custom-fit for each furnace model or the associated application. From the simple controller with an adjustable temperature to the control unit with freely configurable control parameters, stored programs, PID microprocessor control with self-diagnosis system and a computer interface, we have a solution to meet your requirements.

Assignment of Standard Controllers to Furnace Families

	HTCT/HTC	LHT ../LBR	LHT 02/16 - LHT 08/18	L 3 - LT 40	LE 6/11 + LE 14/11	LE 2/11 + LE 4/11	LT ../HA	N
Catalog page	4	5	6	8	10	10	11	12
Controller								
B 180				●			●	
P 330	●			○			○	
R 6						●		
B 150					●			●
P 300					○			○
P 310		●	●					

Functionality of the Standard Controllers

	P 300	P 310	R 6	B 150	B 180	P 330
Number of programs	9	9		1	1	9
Segments	40	40	2	2	2	40
Extra functions (e.g. chimney with fan, catalytic converter with fan)	2	2				2
Maximum number of control zones	1	2	1	1	1	1
Status messages in clear text	●	●		●	●	●
Start time configurable (e.g. to use night power rates)	●	●		●	●	●
Operating hour counter	●	●		●	●	●
Auto tune	●	●		●	●	●
Program entry in steps of 1 °C or 1 min.	●	●	●	●	●	●
Keypad lock				●		
Skip-button for segment jump	●	●		●		●
Drive of manual zone regulation		●				
Interface for MV software	○	○		○	○	●
Programmable power outlet						●*
kWh meter	●	●		●	●	●
Real-time clock						●
Data input via number pad	●	●			●	●

- Standard
- Option

* Not for model L(T)15..

Mains Voltages for Nabertherm Furnaces

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

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

Controltherm MV Software for Control, Visualisation and Documentation

Documentation and reproducibility gain increased attention with steadily rising quality standards. The powerful Nabertherm software Controltherm MV provides for an optimum solution for the control and documentation of one or more furnaces as well as charge data. This software is also perfectly suitable for retrofitting in order to comply with new norms and directives. Generally, all Nabertherm controllers with integrated interface can be connected to the MV-software.

In the basic version one furnace can be connected to the MV-software. The system can be extended to four, eight or even 16 multi-zone controlled furnaces. Up to 400 different heat treatment programs can be stored. The process will be documented and filed. Process data can be read-out graphically or in table format. A data transfer to MS-Excel is also possible.

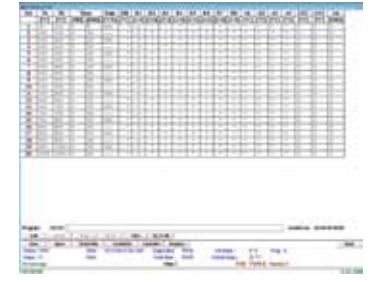
Furnaces which are not controlled via a Nabertherm controller can be also documented with the MV-software. We deliver an extension package as optional equipment. With respect to the individual version, three, six or even nine independent thermocouples can be connected. Independent of the control system, the values of each thermocouple will be read-out and evaluated by the MV-software.

Features

- Simple installation without specific knowledge
- All Nabertherm controllers with interface connectable
- Manipulation protected storage of temperature curves of up to one, four, eight or 16 furnaces (also multizone-controlled), depending on the version of MV-software
- Redundant storage on a network server possible
- Programming, archiving and printing of programs and graphics
- Free input of descriptive charge data text with comfortable search function
- Data exportable into Excel format for further evaluation
- Start/stop of the controller from the local PC (only with Nabertherm controllers mit interface)
- Selectable languages: German, English, French, Italian or Spanish
- 400 additional programs storable (only with Nabertherm controllers with interface)



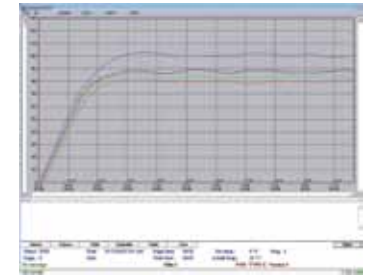
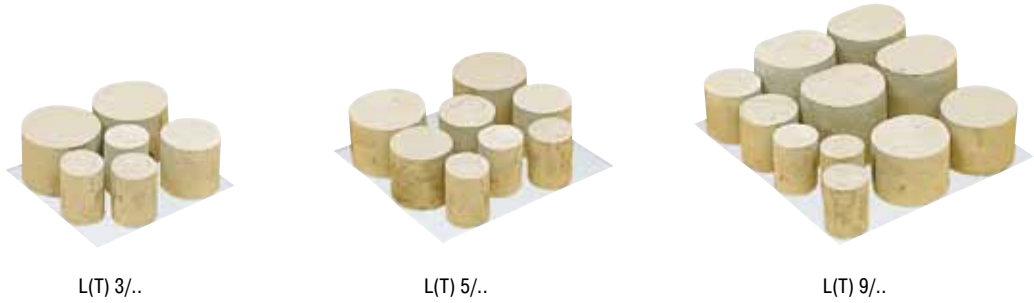
Controltherm MV Software for Control, Visualisation and Documentation



Data input in table format if used together with Nabertherm controllers

Maximum Chargable Number of Burnout Muffles

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



Graphical display of set and actual temperature curve

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	6	4	1	1
LE 2	8	6	2	2
LE 4	20	9	4	2
LE 6	20	9	4	2
LE 14	35	20	12	6
L 1	6	4	1	1
L 3	12	6	2	2
L 5	20	9	4	2-3
L 9	36	16	9	4
L 15	54	24	12	6

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.

Besides news and our current calendar of trade fairs, there is also the opportunity to get in touch directly with your local sales office or nearest dealer worldwide.

Professional Solutions for:

- Arts & Crafts
- Glass
- Advanced Materials
- Laboratory/Dental
- Thermal Process Technology for Metals, Plastics and Surface Finishing
- Foundry



Headquarters:

Nabertherm GmbH
Bahnhofstr. 20
28865 Lilienthal, Germany

contact@nabertherm.de
Phone: (+49) 4298 922-0
Fax: (+49) 4298 922-129

Sales and Service Subsidiaries:

Nabertherm Shanghai Ltd.
150 Lane, No. 158 Pingbei Road, Minhang District
201109 Shanghai, China

contact@nabertherm-cn.com
Phone: (+86) 21 6490 2960
Fax: (+86) 21 6490 3107

Nabertherm S.A.S
51 Rue de Presles
93531 Aubervilliers, France

contact@nabertherm.fr
Phone: (+33) 1 5356 1800
Fax: (+33) 1 5356 1809

Nabertherm Italia
via Trento N° 17
50139 Florence, Italy

contact@nabertherm.it
Phone: (+39) 348 3820278
Fax: (+39) 055 480835

Nabertherm Schweiz AG
Batterieweg 6
4614 Hägendorf, Switzerland

contact@nabertherm.ch
Phone: (+41) 62 209 6070
Fax: (+41) 62 209 6071

Nabertherm Ltd.
Vigo Place, Aldridge
West Midlands WS9 8YB, United Kingdom

contact@nabertherm.co.uk
Phone: (+44) 1922 455 521
Fax: (+44) 1922 455 277

Nabertherm Inc.
54 Read's Way
New Castle, DE 19720, USA

contact@nabertherm-usa.com
Phone: (+1) 302 322 3665
Fax: (+1) 302 322 3215

Nabertherm Ibérica
c/Castella 33, Esc. B2, 5ª3a
08018 Barcelona, Spain

contact@nabertherm.es
Tel.: (+34) 93 303 65 91
Fax: (+34) 93 303 66 05