

Arts & Crafts



Furnaces and Accessories

Pottery
Porcelain Painting
Glass Painting
Fusing
Decorating
Enamelling
Raku



Made in Germany

Nabertherm with 350 employees worldwide have been developing and producing industrial furnaces for many different applications for over 60 years. As 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. The integrated engineering capacity and the vertical range of manufacture secures the project planning and construction of tailor-made thermal process systems with material handling and charging systems. Full thermal processes will be realized by means of 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

With our global sales network, we can offer on-site customer service wherever you choose to produce. 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 Test Center for Customers

What furnace is the right choice for this specific process? This question cannot always be answered easily. Due to this fact 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 spare parts from stock or produce with short delivery time.



Experience in Many Fields of Thermal Processing

In addition to furnaces for Advanced Materials, Nabertherm offers a wide range of standard furnaces and systems for many other thermal processing applications. The modular design of our products allows us to customize a solution to your individual needs without expensive modifications.

Content

	Page
Top Loaders	
Top Loaders, round/oval.....	4
Top Loaders, round/rectangular	6
Top Loaders, Standard Model	7
Top Loaders Accessories	7
Chamber Kilns	
Chamber Kilns, heated from two sides	8
Chamber Kilns, heated from three sides	9
Chamber Kilns, heated from five sides.....	10
Chamber Kilns, Standard Equipment.....	12
Accessories, Installation Service.....	13
Gas-heated Chamber Kilns.....	14
RAKU Kilns	15
Fusing Furnaces	
Fusing Furnaces with fixed Table	16
Fusing Furnaces with movable Table	18
Product Advantages GF and GFM	19
Top-Loading Fusing Kilns with Lid Heating	20
Other Furnaces from our Program for Glass Treatment	21
Glass Beads Cooling Furnace, Multi-Purpose Kiln	22
Enamelling Furnaces	23
Advantages of our Controllers, Key Descriptions	24
Process Control and Documentation	25
From Design to Delivery	26
The Nabertherm Product Range – www.nabertherm.com	27



Top Loaders, round/oval



Top 190



Top 45

Top Loaders, round/oval

Top 45 - Top 220

Attractive design, low weight, and good firing results are only a few of the advantages of our top loaders Top 45 to Top 220. Castors come as a standard feature for ease of mobility. The perfect kiln for hobbyists or small work shops!

Top Quality:

- Heating elements embedded in grooves, heating from all sides
- Top-quality heating elements, optimum wire gauge and length for long life
- Solid state relays provide for low-noise operation
- Rapid switching cycles result in precise temperature control
- Type S thermocouple
- Lid interlock safety switch
- Multiple layers of insulation for low power consumption and low exterior temperatures
- Models Top 60eco ff. with special high-grade, energy-saving backing insulation
- Lightweight refractory bricks inside furnace chamber for clean firing results
- Housing made of sheets of textured stainless steel
- Lid with adjustable quick-release lock and padlock hasp
- Wear-free lid seal (brick on brick)
- Powerful gas dampers make lid opening very easy
- Infinitely adjustable air inlet in opening in the kiln bottom for good ventilation and short cooling times
- Exhaust air outlet on furnace side with stub for pipe of diameter 80 mm
- Lockable castors for easy transport of kiln without the need for lifting
- GS safety mark for controlled safety, CE
- Models Top 60...: for Tmax of 1200 °C and 230V please choose model Top 60, for Tmax of 1300 °C and 230V please choose model Top 60eco as energy-saving version. If 400V three-phase connection is available, we recommend model Top 60/R which fastly heats-up to the working temperature.
- Description of the control system see page 25



Top 220

Additional equipment

- Bottom heating for very good temperature uniformity for Top 140 and Top 190
- Two-zone control of heating via P 310 controller
- Raised base for Top 45 and Top 60

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Conencted load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
Top 45eco	1300	Ø 410		340	45	580	820	760	2.9	1-phase	60
Top 45	1300	Ø 410		340	45	580	820	760	3.6	1-phase	60
Top 60/Leco	1200	Ø 410		460	60	580	820	870	2.9	1-phase	70
Top 60	1200	Ø 410		460	60	580	820	870	3.6	1-phase	70
Top 60eco	1300	Ø 410		460	60	580	820	870	3.6	1-phase	70
Top 60/R	1300	Ø 410		460	60	580	820	870	5.5	3-phase ¹	70
Top 80	1300	Ø 480		460	80	660	910	890	5,5	3-phase	100
Top 100 LE	1100	Ø 480		570	100	660	920	1000	6.0	1-phase ²	100
Top 100	1300	Ø 480		570	100	660	920	1000	7.0	3-phase	100
Top 140 LE	1100	Ø 550		570	140	730	990	1020	6.0	1-phase ²	120
Top 140	1300	Ø 550		570	140	730	990	1020	9.0	3-phase	120
Top 190	1300	Ø 590		690	190	770	1040	1150	11.0	3-phase	150
Top 220	1300	930	590	460	220	1100	1020	950	15.0	3-phase	150

¹Heating only beetween two phases

²Fusing of 32 A if connected to 230 V

*Please see page 25 for more information about supply voltage



Top 60/Leco



Top 100



Top 140



Top 190

Top Loaders, round/rectangular



Top 16/R

The small but powerful Top 16/R is the ideal kiln for hobby ceramics, porcelain painting, and for small fusing jobs. This reasonably priced kiln model is also suitable for glazing samples and small pieces. This compact all-rounder is capable of doing everything larger models can do.

Top quality:

- Heating from all sides, elements embedded in grooves for protection
- Housing made of sheets of textured stainless steel
- Chamfered brick edges and mortar-free lid minimize kiln dirt contamination
- Tabletop model
- Description of the control system see page 25

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load/kW	Electrical connection*	Weight in kg
		Ø	h			W	D	H			
Top 16/R	1300	290	230		16	440	590	530	2.6	1-phase	32

*Please see page 25 for more information about supply voltage



HO 300



HO 70/R

HO 70/L - HO 300

The square top loaders from Nabertherm are extremely rugged. Heated from four walls and the floor with the elements protected in grooves.

Top quality:

- Heating from all sides and bottom, elements embedded in grooves for protection
- Housing made of sheets of textured stainless steel
- Castors for easy transport of the kiln without raising, lockable (HO 70 - HO 100)
- Infinitely adjustable air inlet opening in the kiln bottom for improved ventilation and reduced cooling time
- Air outlet on the side of the kiln with a bleed air collar, 80 mm diameter
- GS safety mark for controlled safety, CE
- Description of the control system see page 25



Firing chamber with heating from 5 sides

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
HO 70/L	1200	440	380	420	70	640	770	780	3.6	1-phase	120
HO 70/R	1300	440	380	420	70	640	770	780	5.5	3-phase ¹	120
HO 100	1300	480	430	490	100	680	820	850	5.5	3-phase ¹	160
HO 300	1300	920	570	610	320	1440	1015	950	15.0	3-phase	430

¹Heating only between two phases

*Please see page 25 for more information about supply voltage

Top Loaders/Standard Model

Top 45 - Top 220



Heating elements are embedded in grooves for optimum protection against damage.



No limitations with top loaders: Our standard top loaders are also equipped with semiconductor relays. Switching of the heater during firing is nearly noise- and wear-free.



The integrated gas dampers facilitate opening and closing of the furnace lid. Even large models can be opened with no problems.



The high-quality insulation keeps the heat where it should be: inside the furnace chamber. Models Top 60eco ff. with high-grade, energy-saving backing insulation.



Top loaders have the same technology that the big ones have: adjustable fresh air inlet opening and exhaust air outlet to guide exhaust gases safely out of the kiln.



Exhaust air outlet with stub for pipe of diameter 80 mm at back of kiln for uniform venting of exhaust air.



Base mounted on castors. Kilns can be moved without lifting.



Comfortable and easy-to-use controller for precise temperature control. The information menu shows important data on power consumption and operating time. Please also read the description starting on page 24.

Top Loaders Accessories

Bottom Heating and Manual Zone Control for Top 140 to Top 190

Do you need especially high temperature uniformity for your work? Then we recommend the optional bottom heating for our large top loaders Top 140 and Top 190.

In combination with the bottom heating, the optional P 310 controller can manually control a second heating zone. As usual, you set the firing profile on the controller. If you determine that the temperature uniformity has to be changed from top to bottom, then you can easily make adjustments of this ratio.



Bottom heating for Top 140 and Top 190 as an additional equipment

Chamber Kilns, heated from two Sides



N 40 E
as tabletop device



N 60 E
with base as additional
equipment

N 40 E - N 100 E

These chamber furnaces impress with their attractive price, appealing design and their excellent craftsmanship. The models N 40 E - N 100 E are ideally suitable for decorating porcelain and glass as well as pottery and fusing applications.

Top quality:

- Tabletop mounting
- Base as additional equipment
- Comfortable charging height of 760 mm (incl. optional base frame)
- Heating from both sides with high-quality heating elements, protected in grooves
- Long-lasting, heavy-gauge heating elements
- Solid state relays provide for low-noise operation
- Fast power switching for precise temperature uniformity
- Thermocouple Type S
- Dual shell door with low outside temperatures
- Door safety switch shuts down power to the elements when the door is opened
- Multi-layered lining with light weight insulation bricks and microporous insulation for a cooler shell and low power consumption
- Housing made of sheets of textured stainless steel
- Infinitely adjustable air inlet opening in the kiln door for improved ventilation and reduced cooling time
- GS safety mark for controlled safety, CE
- Air outlet in the ceiling
- Description of the control system see page 25

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
N 40 E	1300	360	400	320	40	560	740	570	2.9	1-phase	70
N 60 LE	1200	360	400	440	60	560	740	690	2.9	1-phase	90
N 60 E	1300	360	400	440	60	560	740	690	3.6	1-phase	90
N 60 E/R	1300	360	400	440	60	560	740	690	5.5	3-phase ¹	90
N 100 E	1300	360	610	440	100	560	1035	690	5.5	3-phase ¹	120

¹Heating only between two phases

*Please see page 25 for more information about supply voltage

Chamber Kilns, heated from three Sides



N 140 E



N 500 E

N 140 E - N 500 E

Heated from the left and right walls and floor and positioned at an ergonomic height, these models are an economical solution for schools, kindergartens and other institutions. These furnaces are ideal for operating temperatures of approx. 900 °C - 1300 °C.

Top quality:

- Heated from two walls and the floor
- Heating elements embedded in grooves for protection (N 140 E - N 280 E)
- Freely radiating heating elements placed on supporting tubes (N 500 E)
- Long-lasting, heavy-gauge heating elements
- Special arrangement of heating elements for optimal temperature uniformity
- Solid state relays provide for low-noise operation
- Fast power switching for precise temperature uniformity
- Thermocouple Type S
- Door safety switch shuts down power to the elements when the door is opened
- Multi-layered lining with light weight insulation bricks and microporus insulation for a cooler shell and low power consumption
- Rugged, self-supporting, vaulted arch construction
- Solid, dual shell door with long-life sealing
- Door is adjustable and can be locked with padlock
- Rugged housing design
- Kiln floor plate included in delivery
- Environment-friendly, long-life powder-coating of housing
- Infinitely adjustable inlet air opening
- Air outlet in the center of the ceiling ensures good circulation in the furnace chamber
- Socket for connection of an exhaust tube (80 mm diameter) for N 140 E - N 280 E, ceiling flap for N 500 E included in scope of supply
- Base
- Comfortable charging height with base of 800 mm (N 500 E = 500 mm)
- GS safety mark for controlled safety, CE
- Dual shell housing for low outside temperatures as additional equipment. Already standard with model N 500 E
- Description of the control system see page 25



Dual shell housing for cool outer surface – with side panels made of structured stainless steel as additional equipment.



N 280 E

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H ¹			
N 140 LE	1100	450	580	570	140	660	1050	1430	6.0	1-phase ²	220
N 210 LE	1100	500	580	700	210	710	1050	1560	9.0	3-phase	270
N 280 LE	1100	550	580	830	280	760	1050	1690	9.0	3-phase	300
N 140 E	1300	450	580	570	140	660	1050	1430	9.0	3-phase	220
N 210 E	1300	500	580	700	210	710	1050	1560	11.0	3-phase	270
N 280 E	1300	550	580	830	280	760	1050	1690	15.0	3-phase	300
N 500 E	1300	600	820	1000	500	1000	1470	1820	30.0	3-phase	700

¹Base included

*Please see page 25 for more information about supply voltage

²Fusing of 32 A if connected to 230 V

Chamber Kilns, heated from five Sides

N 100 - N 2200/H



N 150

N 200

N 300

Chamber Kilns, heated from 5 Sides

N 100 - N 2200/H

First-class craftsmanship, professional design, long service life and excellent temperature uniformity – these are a few of the reasons our kiln models N100 to N 2200/H are our best sellers to everyone looking for a professional kiln. These furnaces have proven their worth through the years, firing porcelain, stoneware and annealing glass. You will find these kilns in industry as well as in ceramic workshops, studios, clinics, schools and private homes – practically every place where a rugged, capable of frequent firings and excellent temperature uniformity is required.

Top quality:

- Heated from 5 sides
- Heating elements of support tubes provide for free radiation of the heat
- High quality heating wire with optimal thickness and length results in long life time
- Special arrangement of the heating elements for optimal temperature uniformity
- Silicon Carbide floor plate protects floor elements and provides a level setting surface
- Solid state relays provide for low-noise operation (N 100.. - N 300..)
- Fast power switching for precise temperature uniformity
- Thermocouple Type S
- Door safety switch shuts down power to the elements when the door is opened
- Multi-layered lining with light weight insulating bricks and microporus insulation for a cooler shell and low power consumption
- Rugged, self-supporting, vaulted arch construction
- “Cool-touch” dual shell housing with stainless steel side panels (N 100.. - N 300..)
- Clean, professional design enhances your image
- Solid, dual shell door with wear-resistant, precision-made “brick-on-brick” door seal (N 100.. - N 300..)
- Adjustable door with clamping wheels for easy, tight sealing and padlock hasp
- Environment-friendly, long-life powder-coating of housing
- Attractive, durable, environmentally friendly powder-coating
- Infinitely adjustable air inlet opening in the floor
- Delivery includes pipe connection for connecting an air outlet (80 mm diameter)
- GS safety mark for controlled safety, CE
- Base for N 100.. - N 300..
- Comfortable charging height with base of 800 mm (N 440.. / N 660.. = 500 mm)
- Manual-Zone-Regulation for sophisticated firing solutions as an option
- Other sizes or custom designs available on request
- Description of the control system see page 25



N 100



N 660 with stainless steel side sheets as additional equipment

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W ²	D	H ¹			
N 100	1300	400	530	460	100	710	1150	1430	9.0	3-phase	270
N 150	1300	450	530	590	150	760	1150	1560	11.0	3-phase	305
N 200	1300	500	530	720	200	810	1150	1690	15.0	3-phase	345
N 300	1300	550	700	780	300	860	1340	1750	20.0	3-phase	430
N 440	1300	600	750	1000	450	1000	1470	1830	30.0	3-phase	700
N 660	1300	600	1100	1000	650	1000	1820	1830	40.0	3-phase	850
N 1000	1300	800	1000	1250	1000	1470	1850	2000	57.0	3-phase	1800
N 1500	1300	900	1200	1400	1500	1570	2050	2160	75.0	3-phase	2500
N 2200	1300	1000	1400	1600	2200	1670	2250	2360	110.0	3-phase	3100
N 100/H	1340	400	530	460	100	740	1170	1430	11.0	3-phase	310
N 150/H	1340	450	530	590	150	790	1170	1560	15.0	3-phase	380
N 200/H	1340	500	530	720	200	840	1170	1690	20.0	3-phase	420
N 300/H	1340	550	700	780	300	890	1360	1750	27.0	3-phase	550
N 440/H	1340	600	750	1000	450	1000	1470	1830	40.0	3-phase	700
N 660/H	1340	600	1100	1000	650	1000	1820	1830	52.0	3-phase	850
N 1000/H	1340	800	1000	1250	1000	1470	1850	2000	75.0	3-phase	2320
N 1500/H	1340	900	1200	1400	1500	1570	2050	2160	110.0	3-phase	2700
N 2200/H	1340	1000	1400	1600	2200	1670	2250	2360	140.0	3-phase	3600

¹Base included

^{*}Please see page 25 for more information about supply voltage

²N 100.. - N 300.. incl. 50 mm side sheets (dismountable)

Chamber Kilns/Standard Equipment

N 100 - N 660/H



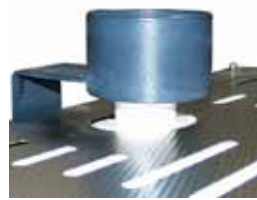
Elements mounted on support tubes give free radiation of heat, longer element and wall life; optimized element positioning for excellent temperature uniformity



Solid-state relays control the kiln heating. Operating silently and nearly wear-resistant, the solid-state relays switch with short pulses, giving excellent temperature uniformity and fast response times.



Easy-to-use Nabertherm controller, precise temperature regulation



Flue in the center-rear section of the ceiling ensures uniform flow of exhaust gasses (roof flap for N 440 and N 660)



Handy quick-release locking wheel, door can be secured with padlock



Dual shell housing for "Cool-Touch" outer surface with side panels made of textured stainless steel (N 100/G - N 300/H)



Base for ergonomic loading height included in delivery. Special height or running on casters as additional equipment.



Infinitely adjustable air-inlet damper for optimum air supply during firing and reduced cooling time. Automatic control available as additional equipment.



Large, ergonomic door handle



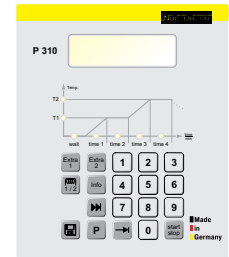
Silicon carbide plate protects the bottom heating elements. It is easily removed to permit convenient cleaning of the furnace bottom and element maintenance.

We recommend: To achieve a long service life of the brick lining and heating elements, the kiln should not be fired every cycle at its maximum rated temperature. Up to 1230 °C we recommend models N 100 - N 660, and for regular high firing temperatures above 1230 °C we recommend our models N 100/H - N 660/H.

Accessories

Manual Zone Control

In combination with the bottom heating, the optional P 310 controller can manually control a second heating zone. As usual, you set the firing profile on the controller. If you determine that the temperature uniformity has to be changed from top to bottom, then you can easily make adjustments of this ratio.



Automatic Air-Inlet Damper

After the chemically bound water has been expelled from the ceramics during firing (max. 600 °C), the air-inlet damper on the kiln must be closed to prevent drafts and to ensure good temperature uniformity in the upper temperature range.



Nabertherm chamber kilns are generally equipped with adjustable air-inlet dampers. We alternatively offer you an electrical drive for the air-inlet dampers with fully automated control via the C 280 or P 300 controller as initial installation.

If your furnace is equipped with a B 130 or another controller without extra function for damper activation, a semiautomatic air-inlet damper controlled via timer can alternatively be used. Electromagnetic closing of the damper occurs after the preset time has elapsed. Retrofitting with this semiautomatic solution is also possible.



Base in special height or on casters.

Loading rack for chamber furnaces. The entire kiln load may be ergonomically inserted or extracted in one movement using a pallet lift truck (N 150 ff). This allows the kiln to be fired again more quickly.



Batts, plates and posts. Matching sets of kiln furniture are available for every type of furnace.



If you have a question, do not hesitate to ask us!

Installation Service

Nabertherm and your dealer can help arrange professional installation and assembly of your kiln into your studio.

All of our kilns ship completely assembled in one piece. While other manufacturers sell sectional designs, we do not because it negatively affects the performance and safety of our kilns. A one-piece design may take more effort on the day you install your kiln, but its effortless operation every day thereafter more than makes up for this.



Professional installers moving a chamber kiln into a basement studio.

Gas-heated Chamber Kilns



NB 300 with base frame on castors (option) and fully automatic control system.



NB 600

NB 300 - NB 600

Some firing processes require a gas-heated chamber kiln. Fast heating times and unique firing results are strong reasons for using such equipment.

Equipped with powerful gas burners the chamber kilns NB 300 - NB 600 are suitable for many creative applications. In the basic version the temperature cycle is manually controlled. As additional equipment an automatic control system is available. In this version the burners only have to be sparked by hand. The temperature curve is fully regulated by the controller. After program end the burners are switched off automatically.



Gas supply system and thermocouple for automatic control system.

Standard Version

- Powerful, atmospheric burner for operation with earth gas or LPG
- Special positioning of the gas burner with flame guide top-down results in good temperature uniformity
- Manual set-up of burner power and atmosphere (oxidizing or reducing)
- Gas fittings with flame control and safety valve in accordance with DVGW (German Technical and Scientific Association for Gas and Water)
- Multi-layer, reduction-proof insulation with light-weight refractory bricks and special back-up insulation result in low gas consumption
- Self-supporting and rugged ceiling, bricks laid in arched construction
- Dual shell housing, side panels made of stainless steel (NB 300), for low outside temperatures
- Solid, dual shell door
- Adjustable door that can be locked with a padlock
- Environmentally friendly, long-life powder coated housing
- Exhaust hood with 150 mm (NB 300) and 200 mm (NB 400, NB 600) diameter connection
- Base
- Comfortable charging height with base of 800 mm (NB 300) and 500 mm (NB 400, NB 600)



Powerful burner

Additional equipment

- Automatically working controllers B 130, C 280 or P 300 (see page 25)
- Temperature indicator with plugged thermocouple, Type S
- CO warning device



Automated process control

Model	Tmax °C	Working chamber dimensions in mm			Volume in l	Outer dimensions in mm			Rating kW	Electrical connection*1	Weight in kg
		w	d	h		W	D	H ²			
NB 300	1300	450	700	780	300	1250	1250	2150	40	1-phase	430
NB 400	1300	500	750	1000	440	1300	1300	2250	80	1-phase	700
NB 600	1300	500	1100	1000	650	1300	1600	2250	80	1-phase	850

*1 No voltage supply necessary if kiln is manually operated

*Please see page 25 for more information about supply voltage
²Exhaust hood of 440 mm included (dismountable)

RAKU Kilns



RAKU-System 100
with lifting stand and gas burner



Hood including table



Lifting stand with crank drive

RAKU System 100, 3-Piece-Kit

The RAKU 100 is a gas-fired kiln for outdoor operations with standard propane gas. This kiln combines two different furnace concepts: It can either be used as a top loader or as hood furnace. In the basic version, the hood is lifted by two bars. As an accessory, the furnace can be supplied with a lifting stand. This frame is provided with a crank drive which makes it very easy to lift the hood. With this version, you can operate the furnace by yourself, without problems. We can also provide the matching propane burner. However, you may decide to use your own model.

Top quality:

- Easy and simple construction, applies particularly to the hood
- Can be used as hood furnace or top loader
- Housing made of sheets of textured stainless steel
- Inspection holes for observing your fired ware
- High-quality insulation with low heat-storage capacity for short heat-up times
- Low gas consumption
- Special flame manipulation for good temperature uniformity
- Simple handling



Propane burner with bottle connection,
high-performance with 18 kW



Temperature gauge for RAKU 100, easy to operate, NiCr-Ni temperature sensor, display range 20 - 1200 °C, optional connection of second sensor with display changeover

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Weight in kg	
		w	d	h		W	D	H	Hood	Lifting device
RAKU system 100	1150	500	500	620	103	750	660	1150	36	16
lifting stand burner						750	1000	1850		
		Power 18 kW								

Fusing Furnaces with fixed Table



GF 240



GF 75



"Combing" in a GF 240



Exhaust air flap as additional equipment

GF 75 - GF 1425

The furnace models GF 75 - GF 1425 are particularly suitable for fusing of glass. Their special construction, with infrared heating elements mounted on the ceiling and light fiber insulation, ensures fast heat-up and cool-down rates and optimum fusing or slumping results. As protected infrared heating is used, any direct contact with the heating coils is avoided.

Top quality:

- Tmax 950 °C
- Heating elements in quartz glass tubes provide for short heat-up times and energy saving operation
- Overhead heating for direct heat transfer to your ware
- Table with brick insulation
- Hood insulation with special ceramic fibers for rapid heating and cooling
- Solid state relays provide for low-noise operation
- Fast power switching for precise temperature uniformity
- Type "K" (NiCr-Ni) thermocouple inside the furnace chamber for precise temperature measurement
- Housing made of high-grade stainless steel and ventilated lid
- Attractive and professional design enhances your image
- Gas springs counterbalance the hood weight for easy opening and closing
- Adjustable quick-release locks to secure the hood during firing
- Large "cool-touch" handle for opening and closing the furnace
- Angled sight ports with plugs let you see the progress of your work and cool quickly
- Delivered ready for operation including base frame with swivel casters and storage shelf
- Other sizes or custom designs available on request
- Comfortable charging height with base of 870 mm
- Exhaust air flap on hood for rapid cooling as additional equipment
- Description of the control system see page 25



GF 1425

Model	Tmax °C	Inner dimensions in mm			Floor space in m ²	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H ³			
GF 75	950	500	500	350	0.25	850	950	1280	3.6	1-phase	70
GF 75 R	950	500	500	350	0.25	850	950	1280	5.5	3-phase ¹	70
GF 190 LE	950	1000	500	350	0.50	1350	850	1300	6.0	1-phase ²	165
GF 190	950	1000	500	350	0.50	1350	850	1300	6.4	3-phase ¹	165
GF 240	950	1000	800	350	0.80	1350	1090	1300	11.0	3-phase	260
GF 380	950	1200	1000	380	1.20	1650	1500	1400	15.0	3-phase	350
GF 420	950	1650	850	380	1.40	2100	1350	1400	18.0	3-phase	350
GF 520	950	1200	1150	380	1.38	1650	1650	1400	15.0	3-phase	450
GF 600	950	2000	1000	380	2.00	2450	1500	1400	22.0	3-phase	500
GF 920	950	2100	1150	380	2.41	2550	1650	1400	26.0	3-phase	670
GF 1050	950	2300	1200	380	2.76	2750	1700	1400	32.0	3-phase	780
GF 1425	950	2500	1500	380	3.75	2950	2000	1400	32.0	3-phase	920

¹Heating only between two phases

²Fusing of 32 A if connected to 230 V

³Base included

*Please see page 25 for more information about supply voltage

Fusing Furnaces with movable Table



GFM 1050



GFM 1050



Locking device provides for defined hood opening in different positions and accelerated cooling



Automatic hood opening via electromechanical spindle



Flap with inspection glass as additional equipment for easy observation of the glass.

GFM 420 - GFM 1050

The GFM series was developed to meet the special requirements of production. For different applications different table depths can be supplied. Standard tables have a depth of 65 mm for fusing. Various tables and tubs with different heights and numerous additional equipments are available as system add-ons. Especially economical is the alternating table system, in which one table is loaded while the other one is in the furnace.

- Tmax 950 °C
- Infrared heated in hood which is attached to stand
- Delivered with one table
- Table on wheels, freely movable, with brick insulation
- Comfortable charging height with base of 870 mm
- Heating elements in quartz glass tubes provide for short heat-up times and energy saving operation
- Lid heating elements for direct radiation on the surface of the glass
- Solid state relays provide for low-noise operation
- NiCr-Ni thermocouple inside the furnace for precise temperature measurement
- Insulation with special ceramic fibres for short heat-up and cool-down times
- Housing made from high-quality stainless steel and lid with ventilation ports (avoidance of rust formation during drying of plaster moulds)
- Attractive design and solid construction
- Gas dampers facilitate opening and closing of hood
- Adjustable locks for easy handling
- Large metal handle for opening and closing furnace
- Supply air and glass inspection ports with insulated doors, viewing window as an additional equipment
- Description of the control system see page 25

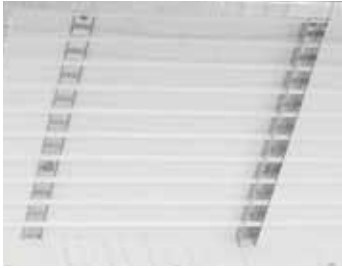
Additional features for fusing furnaces GF and GFM

- Automatic lid opening for faster cooling, programmable via the extra controller function, for models GF 380 and/or GFM 380 up
- Exhaust air flap on hood for rapid cooling

Model	Tmax °C	Inner dimensions in mm			Floor space in m ²	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
GFM 420	950	1650	850	380	1.40	2400	1480	1400	18	3-phase	410
GFM 520	950	1200	1150	380	1.38	1950	1780	1400	15	3-phase	430
GFM 600	950	2000	1000	380	2.00	2750	1630	1400	22	3-phase	610
GFM 920	950	2100	1150	380	2.42	2850	1780	1400	26	3-phase	740
GFM 1050	950	2300	1200	380	2.76	3050	1830	1400	32	3-phase	860

*Please see page 25 for more information about supply voltage

Product Advantages Fusing Furnaces GF and GFM



Well-dimensioned quartz glass heaters provide for a very even temperature uniformity on the glass.



Sturdy design of brick insulation results in a solid flat table top.



Insulation of the table collar made of long lasting light-weight refractory bricks.



Solid state relays to switch the heating elements which results in an optimal adaptation of the firing cycle to the temperature curve.



Flaps with inspection glass as additional equipment for easy observation of the glass.



Large metal handle for opening and closing of the kiln.



Insulated gas dampers result for easy opening of the kiln.



Hood with exhaust air flap as additional equipment.



Base on castors with shelf for tools or other materials.



Automatically driven lid as additional equipment.

Top-Loading Fusing Kilns with Lid Heating



F 30



F 220
with Two-Zone Regulation



Kiln interior with circular lower side heating

F 30 - F 220

This well-priced kiln range is the ideal choice for many fusing applications. The insulation is made from lightweight refractory bricks with protected heating elements in the lid, models F 75 and F 220 have additional side heating.

Top quality:

- Lid heating for direct radiation of goods
- Spring-loaded lid opening (F 75 - F 220)
- High quality heating elements, dimensioned for long service life
- Level setting surface made from lightweight refractory bricks
- Solid state relays provide for low-noise operation
- Thermocouple optimally positioned for immediate temperature measurement
- Energy-saving insulation made from lightweight refractory bricks
- Housing made of sheets of textured stainless steel
- Lid with adjustable locks for easy handling
- Low wear & tear lid sealing (brick on brick construction)
- Higher chassis available as an option
- Manual-Zone-Regulation for F 220 (lid and sides)
- Description of the control system see page 25



F 110

Model	Tmax °C	Inner dimensions in mm			Floor space in m ²	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
F 30	950	Ø 410			0.13	650	800	500	2.0	1-phase	50
F 75 L	950	750	520	230	0.33	950	880	680	3.6	1-phase	80
F 75	950	750	520	230	0.33	950	880	680	5.5	3-phase	80
F 110 LE	950	930	590	230	0.47	1120	950	680	6.0	1-phase ¹	95
F 110	950	930	590	230	0.47	1120	950	680	7.5	3-phase	95
F 220	950	930	590	460	0.47	1120	950	910	15.0	3-phase	115

¹Fusing of 32 A if connected to 230 V

*Please see page 25 for more information about supply voltage

Other Furnaces from our Program for Glass Treatment



When you need a high-volume solution for heat treating glass, Nabertherm has your answer. We have industrial designs for annealing, fusing, slumping, decorating, tempering, and many other applications. In addition to our wide range of standard furnaces, we can design a specific solution for you. Please ask for our 40-page "Glass" catalog and see all our possibilities.



Fusing furnace with movable tables



Dual-use kiln system for fusing and slumping



Fusing furnace with freely movable table



Tub furnace with rail-mounted sliding tub

Multi-Purpose Chamber Kiln



Glass beads Cooling Furnace/Multi-Purpose Kiln MF 5

A high-quality furnace is indispensable for professional glass bead tempering. The MF 5 model is the ideal furnace for cooling large glass beads or glass jewelry. For charging the glass beads, the door is equipped with a window which can be closed with a filler piece when the furnace is used for other applications. The infrared heating prevents direct contact with the heating elements so the furnace can be safely opened during operation without heating interruption. With a maximum temperature of 950 °C, this furnace is multifunctional, and can be used for fusing and enameling applications, for decorating and for preheating frits and other materials.



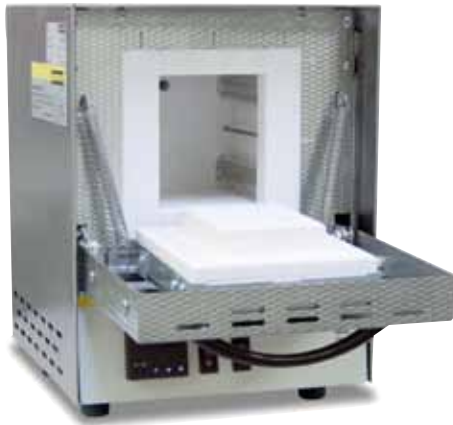
Top quality:

- Tmax 950 °C
- Heating from furnace ceiling
- Elements protected in quartz glass tubes for safe open-door operation
- Multi-layer energy-efficient insulation
- Table-top model
- Housing made of sheets of textured stainless steel
- Low energy consumption
- Easy to handle
- Solid state relays provide for low-noise operation
- Window with rack for charging glass beads
- Description of the control system see page 25

Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
MF 5	950	220	240	100	5	485	370	320	1.6	1-phase	15

*Please see page 25 for more information about supply voltage

Enamelling Furnaces



LE 1/11



LE 6/11

Enamelling Furnaces LE 1/11 - LE 14/11

The muffle furnaces LE 1/11 - LE 14/11 are ideally suitable for enamelling. Their low power consumption and user-friendly design makes this furnace type the optimum solution for small work. The dual shell housing keeps the outside temperature cool to the touch. The vacuum-fiber insulation allows short heat-up times. Protected elements make this a durable solution.

Top quality:

- Tmax 1100 °C, 1050 °C as continuous temperature
- Heating from both sides
- Elements protected by quartz tubes which allows opening of furnace during operation
- Insulated with hardened vacuum-fiber modules
- Housing made of sheets of textured stainless steel
- Low energy consumption
- Easy to operate
- Solid state relays provide for low-noise operation
- Description of the control system see page 25



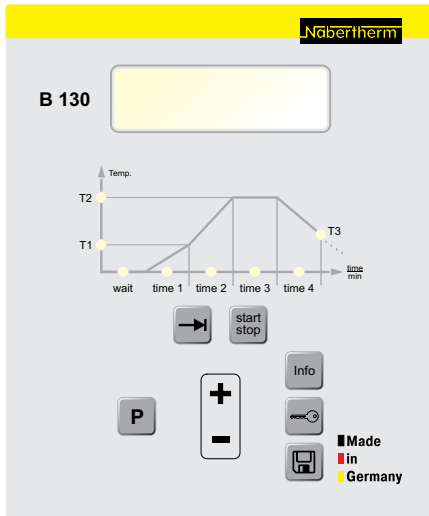
LE 2/11



Model	Tmax °C	Inner dimensions in mm			Volume in l	Outer dimensions in mm			Connected load kW	Electrical connection*	Weight in kg
		w	d	h		W	D	H			
LE 1/11	1100	90	115	110	1	250	265	340	1.5	1-phase	10
LE 2/11	1100	110	180	110	2	275	380	350	1.8	1-phase	10
LE 4/11	1100	170	200	170	6	335	400	410	1.8	1-phase	15
LE 6/11	1100	170	200	170	6	510	400	320	1.8	1-phase	18
LE 14/11	1100	220	300	220	14	555	500	370	2.9	1-phase	25

*Please see page 25 for more information about supply voltage

Advantages of our Controllers



B 130

- Ease of use and reliability are the major considerations in the development of our controllers.
- A clear key arrangement facilitates programming of the controller.
- All times and temperatures can quickly be read on the large-sized, high-contrast display.
- A number of different individual firing profiles can be saved (depending on the model).
- LEDs clearly display each program segment.
- Important information such as power consumption, operating time, and error messages can easily be called up via the Info key.

Key Descriptions



Program key for selecting a program



Key for jumping to the next segment



Key for starting/ending the running program



Main key for changing values on the display (temperatures/times)



Save key for saving your own programs



Lock key for locking the controller so that no changes can be made to the program (B 130 and C 280)



Pressing this key calls the information menu, which contains the following data:

- Power consumption
- Operating time
- Program runtime and temperature
- Fault memory
- Heating output

Additional keys of Controllers C 280, P 300, P 310



Key for activating an extra function such as a cooling fan (C 280, P 300, P 310)



Skip key for prematurely changing segments (P 300, P 310)



Output key for heating circuits (P 310 only)

Process Control and Documentation

Nabertherm has many years of experience in design and construction of standardized and customer-friendly control units. The controllers distinguish themselves by a very high operating convenience and provide extensive basic functions from the basic model on.

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.

Allocation of the Standard Controller to the Furnace Groups

Catalog page	Top 16/R - Top 100	Top 140 - Top 220	HO 70.. - HO 300	N 40E - N 100E	N 140E - N 500E	N 100 - N 2200/H	NB 300 - NB 600	GF 75 - GF 1050	GFM	F 30 - F 110	F 220	MF 5	LE 1/11 - LE 4/11	LE6/11 - LE 14/11
Controller														
B 130	●	●	●	●	●	●	○							
C 280	○	○	○	○	○	○	○							
P 300	○	○	○	○	○	○	○	●	●	●		●		○
P 310		○				○					●			
R 6													●	
B 150														●

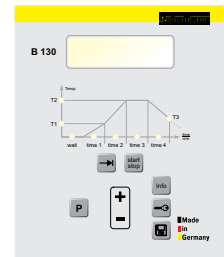
Functionality of the Standard Controllers

	B 130	C 280	P 300	P 310	R 6	B 150
Number of programs	2	9	9	9		1
Segments	4	4	40	40	2	2
Extra functions (e.g. fan or autom. flaps)		2	2	2		
Maximum number of control zones	1	1	1	2	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	○	○	○	○		○
kWh meter	●	●	○	○		●
Data input via number pad			●	●		

- Standard
- Option

Interface/Software MV

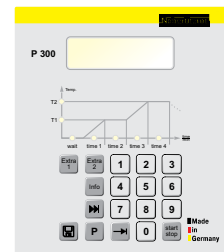
For easier programming and documentation of your controllers, we offer our Controltherm Software. This system lets you connect up to 16 furnaces to a PC. From here you may edit and download programs, monitor firing progress and store historical data for all your firings. Data may be exported to Excel for easier manipulation.



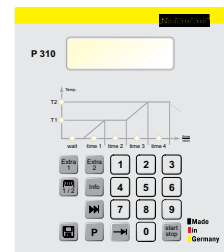
B 130



C 280



P 300



P 310



B 150



Supply Voltages for Nabertherm Furnaces

1-phase: All furnaces are available for 110 V - 240 V, 50 or 60 Hz.

3-phase: All furnaces are available for 200 V - 240 V and/or 380 V - 480 V, 50 or 60 Hz.

From Design to Delivery



More than 40 development engineers ensure that our kilns and furnaces are always state-of-the-art. Each furnace is designed using ultramodern 3D CAD programs. Mechanical functions can already be tested on-screen.



In order to secure the future of Germany as a production location, we use state-of-the-art machines for manufacturing our furnaces. For example, all sheet metal parts on the furnace are precisely cut using a laser cutting machine.



We make no compromises when it comes to insulation of our furnaces. Each furnace is lined by hand. All insulation materials are hand-picked and inserted accurately into the furnace. Regular quality control of all materials ensures the longevity of the furnace.



Each furnace undergoes an extensive final inspection before it leaves the factory. This underlines our high quality and workmanship standards.



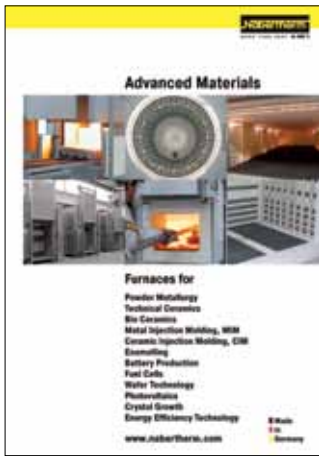
A good supply of replacement parts is important for a long furnace life. We deliver spare parts fast and at fair prices so that you will be sure to have many years of satisfaction with your kilns. Even today we are still providing spare parts for the first kilns we ever delivered.



Take a look at our company video at www.nabertherm.com to find out more about us.

**■ Made
■ in
■ Germany**

The Nabertherm Product Range – www.nabertherm.com

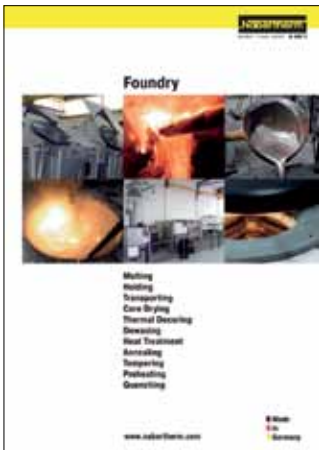


Advanced Materials

With our broad range of furnaces for advanced materials we offer interesting solutions for many applications in powder metallurgy and technical ceramics, for the manufacture of fuel cells and other innovative areas of application. Our electric or gas heating furnaces can be operated in air, protective gas atmospheres or in a vacuum. From our laboratory furnaces to fully automated multi-purpose furnace systems with exhaust gas cleaning systems, we are sure to find a solution to meet your needs.

Laboratory/Dental

Apart from the furnaces shown for production Nabertherm offers a wide range of standard furnaces for laboratories. We keep standard units in stock for short delivery times. Please ask for our special laboratory brochure which provides more detailed information on the furnaces which could be of interest to you.



Foundry

From electrically or gas heated melting furnaces, dewaxing furnaces or core drying furnaces to fully automatic annealing plants for aluminum or steel, Nabertherm covers professionally all applications for the foundry industry.

Thermal Process Technology

Tempering, annealing, hardening and quenching, solution annealing, forging, curing, preheating, drying, ageing – these are only some of the applications which are possible with our extensive program of furnaces and systems. From the compact hardening furnace to fully-automatic systems with conveying technology and process documentation – we certainly will find a solution tailored to your application.



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 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 & 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 Högendorf, 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, 5^o3^a
08018 Barcelona, Spain

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