

## Nabertherm Controller Series 500

**I AM THE  
CONTROLLER**

I'm the big brother of analog buttons and turning switches. I am the new generation of control and intuitive operation. My skills are highly complex, my operation is simple. I can be touched and speak 24 languages. I'll show you exactly which program is currently running and when it ends.



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



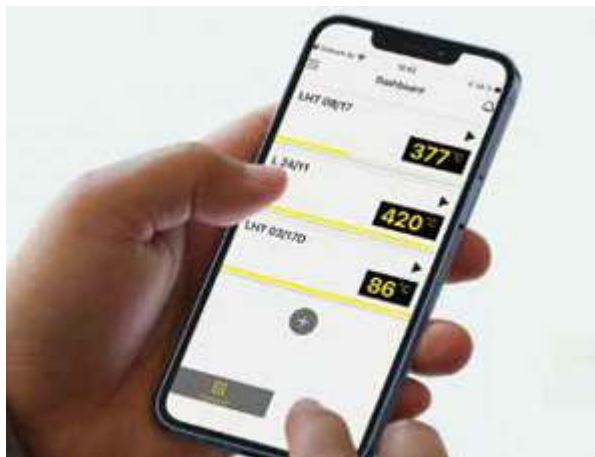
Process documentation on USB

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.



# Functions of the Standard Controllers

	R7	3216	3208	B500/ B510	C540/ C550	P570/ P580	3508	3504	H500	H1700	H3700	NCC
Number of programs	1	1		5	10	50	1/10/ 25/50 <sup>3</sup>	1/10/ 25/50 <sup>3</sup>	20	20	20	100
Segments	1	8		4	20	40	500 <sup>3</sup>	500 <sup>3</sup>	20	20	20	20
Extra functions (e. g. fan or autom. flaps) maximum				2	2	2-6	0-4 <sup>3</sup>	2-8 <sup>3</sup>	3 <sup>3</sup>	6/2 <sup>3</sup>	8/2 <sup>3</sup>	16/4 <sup>3</sup>
Maximum number of control zones	1	1	1	1	1	3	2 <sup>1,2</sup>	2 <sup>1,2</sup>	1-3 <sup>3</sup>	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	○	○	○	●	●	●	○	○	●	● <sup>3</sup>	● <sup>3</sup>	● <sup>3</sup>
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)				●	●	●						

<sup>1</sup> Not for melt bath control

<sup>2</sup> Control of additional separate slave regulators possible

<sup>3</sup> Depending on the design

● Standard  
○ Option

Which controller for which furnaces	TR	TR .. LS	KTR	NAT 15/65	NA 30/45 - NA 675/85	L 1/12	L 3 - LT 40	LE	L(T) 9/11/SKM	LV(T)	L .. /11 BO	L(T) 9 / .. /SW	LH, LF	N .. /H	LHTC(T)	LHT .. /.. (D)	LHT .. /17 LB Speed, LHT 16/17 LB	LHT 04/.. SW	HT, HFL	HTC	RD	R	RSH/RSV	RSRB, RSRC	RT	RHTC	RHTH/RHTV	N .. CUP	GR	LS	K	KC	
Catalog page	6	6	8	10	10	14	14,17,18	16	19	20	22	23	28	30	34	35	36	37	38,41	39	44	45	46	48	52	53	54	66	68	69	70	70	
Controller																																	
R7	●					●		●													●										●		
3508																																	●
B500			●		●								●	●										●				●					
B510	○			●			●		●	●		●										●	●		●	●							
C540		○	○		○				○	○	●	○	○	○									○	○	○	○							
C550	○	●		○			○		○	○	○	○			●								○	○	○	○							
P570			○		○								○	○		●	●	●	● <sup>3</sup>	● <sup>3</sup>				○	○							● <sup>3</sup>	
P580	○			○			○		○	○	○	○			○								○	○	○	○							
H500/PLC					○								○										○	○			○						
H1700/PLC			○		○																		○	○									
H3700/PLC			○		○																		○	○									
NCC			○		○								○										○	○		○							

## 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).

## 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 entered 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 charge documentation on the basis of Nabetherm controllers.

The VCD software is used to record process data of the series 500 and series 400 as well as various further Nabetherm 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 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 Nabetherm 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

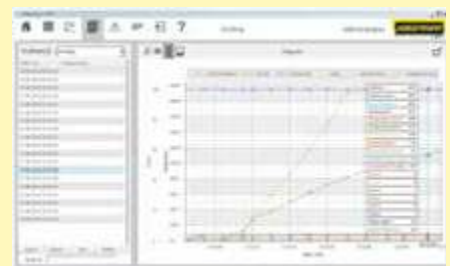
- Connection of three thermocouples, tpye K, S, N or B to the included connecting box
- Possible extension of up to two or three connecting boxes with up to nine measuring points
- Conversion and transmission of measured values to the VCD software
- Data evaluation, see VCD features



VCD Software for Control, Visualisation and Documentation



Graphic display of main overview (version with 4 furnaces)



Graphic display of process curve

## PLC Controls HiProSystems



This professional process control with PLC controls for single and multi-zone furnaces is based on Siemens hardware and can be adapted and upgraded extensively. HiProSystems control is used when process-dependent functions, such as exhaust air flaps, cooling fans, automatic movements, etc., have to be handled during a cycle, when furnaces with more than one zone have to be controlled, when special documentation of each batch is required and when remote service is required. It is flexible and is easily tailored to your process or documentation needs.

### Alternative User Interfaces for HiProSystems

#### Process Control H500

This basic panel accommodates most basic needs and is very easy to use. Firing cycle data and the extra functions activated are clearly displayed in a table. Messages appear as text. Data can be stored on a USB stick using the „NTLog Comfort“ option.

#### Process Control H1700

Customized versions can be realized in addition to the scope of services of the H500. Display of basic data as online trend on a color 7" display with graphically structured interface.

#### Process Control H3700

Display of functions on a large 12" display. Display of basic data as online trend or as a graphical system overview. Scope as H1700.

### Remote Maintenance Router – Fast Support in Case of a Malfunction

For fast failure diagnosis in case of a malfunction, remote maintenance systems are used for HiProSystems-plants (depending on the model). The plants are equipped with a router, which will be connected to the internet by the customer. In case of a malfunction, Nabertherm is able to get access to the furnace controls via a secured connection (VPN tunnel) and to perform a malfunction diagnosis. In most cases, the problem can be directly solved by a technician on site according with supervision from Nabertherm.

If no Internet connection can be provided, we offer optionally the remote maintenance via LTE network as additional equipment.



H1700 with colored, tabular depiction



H3700 with colored graphic presentation



Router for remote maintenance

# Process Data Storage



The following options are available for industrial process documentation and the recording of data from several furnaces. These can be used to document the process data for the PLC controls.



NTLog Comfort for data recording of a Siemens PLC via USB stick

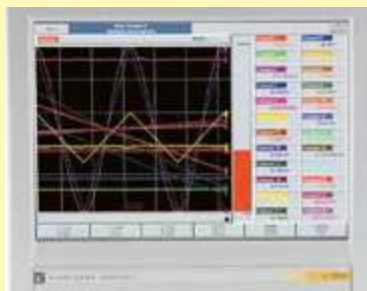
## Data Storing of HiProSystems with NTLog Comfort

The extension module NTLog Comfort offers the same functionality of NTLog Basic module. Process data from a HiProSystems control are read out and stored in real time on a USB stick. The extension module NTLog Comfort can also be connected using an Ethernet connection to a computer in the same local network so that data can be written directly onto this computer.

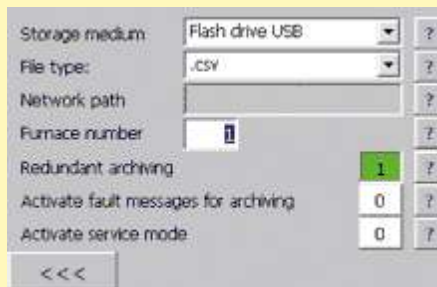
## Temperature Recorder

Besides the documentation via the software which is connected to the controls, Nabertherm offers different temperature recorders which can be used with respect to the application.

	Model 6100e	Model 6100a	Model 6180a
Data input using touch panel	x	x	x
Size of colour display in inch	5.5"	5.5"	12.1"
Number of thermocouple inputs	3	18	48
Data read-out via USB-stick	x	x	x
Input of charge data		x	x
Evaluation software included	x	x	x
Applicable for TUS-measurements acc. to AMS2750F			x



Temperature recorder



NTLog Comfort - Data recording via USB stick



NTLog Comfort - Data recording online on the PC

## Nabertherm Control Center NCC

### PC-based control, process visualization and process documentation software

The Nabertherm Control Center as PC-supported furnace controls offers an ideal extension for furnaces with PLC based HiProSystem controls. The system has proven itself in many applications with increased demands on documentation and process reliability and also for convenient multi-furnace management. Many customers from the automotive, aviation, medical technology or technical ceramics sectors have been working successfully with this powerful software.



Retort furnace NR 300/08 for treatment in high vacuum

#### Standard Equipment

- Central furnace management
- Graphical furnace overview of up to 8 furnaces
- Tabular, clear program entry (100 program locations)
- Charge administration (article, quantity, additional information)
- Connection to the company network
- Adjustable access rights
- Online monitoring of the heat treatment
- Tamper-proof documentation
- Malfunction message list, adapted to the furnace model
- Archive function
- Delivery incl. PC and printer
- Measuring range calibration of up to 18 temperatures per measurement point. Multi-stage calibration is possible for applications with normative requirements.

#### Additional Equipment

- Reading in charge data via barcode
  - Simple data acquisition, ideal for frequently changing charges
  - Defined charge data ensures data quality
- Recipe storage with charge comparison
  - Comparison of charge and recipe to increase process reliability
- Adaptable access rights or access rights via employee cards
- Software extension to fulfill documentation requirements according to norms like AMS2750F (NADCAP), CQI9 or Food and Drug Administration (FDA), Part 11, EGV 1642/03
- Interface for connection to overriding systems
- SQL connection
- Redundant data storage
- Cellular connection or network connection for notification via SMS, e.g. in the event of malfunctions
- Control from different PC workstations
- Configuration as industrial PC or virtual machine
- PC cabinet
- UPS for PC
- Customization according to individual requirements



Retort furnace NR 80/11 with IDB safety concept for debinding under non-flammable protective gases



System overview



Furnace overview



Measurement range calibration