MACHEREY-NAGEL

NANOCOLOR® Heating blocks

Water Analysis

Fast and reliable sample digestions

- Touch screen with intuitive user guidance

- Mechanically lockable lids for maximum security

- USB interfaces for PC connection

NANOCOLOR® heating blocks

Future proof heating blocks for reliable sample digestions
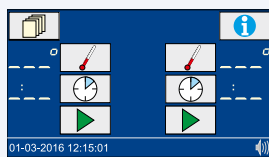
NANOCOLOR® heating blocks allow a fast and reliable performance of required sample digestions in water and waste water analysis. Standard parameters for routine digestions (for example COD, TOC, total-nitrogen, total-phosphorus and total-metals) are pre-programmed and help users to avoid errors.
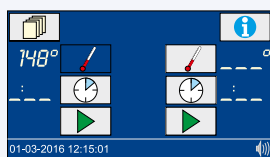
Save time

All *NANOCOLOR*® heating blocks can be intuitively operated by the user-friendly touch screen. Heating programs can be selected quickly and easily in a matter of seconds. No time-consuming trainings are needed.
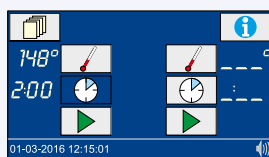
Intuitive operation

- Convenient input via icon-based menu guidance
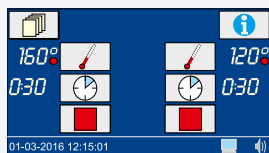- Quick and easy selection of heating programs
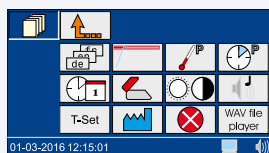

Start screen

Temperature selection

Time selection

Time-saving procedures

- Extremely short warm-up times
  (from 20 °C to 160 °C in just 10 minutes)
- High-speed COD, total-nitrogen, total-phosphorous and total-metals in just 30 minutes

Self-explanatory user guidance

- User-friendly, bright touch screen
- operation without time-consuming training

Standard programs and easy programming

- 6 pre-programmed temperatures
  70 °C / 100 °C / 120 °C / 148 °C / 150 °C / 160 °C
- 5 pre-programmed temperatures
  10 min / 30 min / 60 min / 120 min / cont.
- 6 free memory locations between
  40 °C–160 °C (1 °C increments)
- 7 free memory locations between
  0 h : 01 min–9 h : 59 min
  (1 min increments)

NANOCOLOR® heating blocks

Experience flexibility

MACHEREY-NAGEL offers the perfect heating block for every purpose of routine analysis in laboratories. The NANOCOLOR® VARIO C2 allows a simultaneous digestion of 12 samples. For a higher sample throughput the NANOCOLOR® VARIO 4 allows a simultaneous digestion of 24 samples in two independently usable heating units. The NANOCOLOR® VARIO C2 M has two 22 mm bores and eight 16 mm bores and can be used perfectly for digestions of big and small reaction glasses for metal analysis. With the NANOCOLOR® VARIO HC users have the possibilty to digest all important parameters in just 30 minutes.

The ideal size for any purpose

NANOCOLOR® VARIO 4

- Simultaneous digestion of 24 samples
- Two independently usable heating units
- The most flexible solution

REF 919300

NANOCOLOR® VARIO C2

- Simultaneous digestion of 12 samples
- The ideal choice for small sample amounts

REF 919350

For metal analysis

NANOCOLOR® VARIO C2 M

- Simultaneous digestion of 8 samples in 16 mm bores and 2 samples in 22 mm bores
- The ideal choice for big and small sample amounts for metal analyis

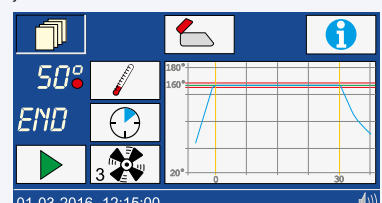REF 919350.1

For very fast digestion

NANOCOLOR® VARIO HC

- Simultaneous digestion of 12 samples
- Active rapid cooling after digestion
- Heating unit

REF 919330

The cooling process temperature and cooling speed can be individually adjusted with the NANOCOLOR® VARIO HC.
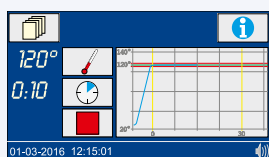
NANOCOLOR® heating blocks

Suitable for all *NANOCOLOR*® digestion methods

In addition to the numerous pre-programmed temperatures and heating times, a wide range of user-specific digestion methods can be stored.

Applications	Temperature	Time
COD (DIN ISO 15705)	148 °C	120 min
High-speed COD	160 °C	30 min
TOC	100 °C	60 min
Total-nitrogen	120 °C	30 min
Total-phosphorus	120 °C	30 min
Organic acids	100 °C	10 min
Total-metals (Cadmium, Chrom, Eisen, Kobalt, Kupfer, Nickel, Zink)	120 °C	30 min
AOX	120 °C	30 min
Hydrocarbons	148 °C	120 min
Programmable, user-defined programs	40 °C–160 °C	0 h : 01 min–9 h : 59 min

Be safe

NANOCOLOR® Heating Blocks feature mechanically interlocked, fully enclosed hoods for maximum splash protection. In addition, the integrated contact protection provides increased operator safety. The graphically displayed heating curves create transparency about the temperature stability.

Constant digestion conditions
- High temperature stability
- Electronic overheating protection
- Graphical display of heating curves

Maximum sfety for the user
- Extra strong safety covers for contact protection
- Fully enclosed and mechanically locked cover
- Display alert in case of open protective lid

Ordering information

Description	REF
Heating block *NANOCOLOR*® VARIO 4 Featuring 2 blocks with separate control, 2 x 12 bores for test tubes 16 mm OD, incl. power cable, 2 separate protective coverings, manual, data cable, software DVD and certficate	919300
Heating block *NANOCOLOR*® VARIO C2 12 bores for test tubes 16 mm OD, incl. power cable, protective covering, manual, data cable, software DVD and certificate	919350
Heating block *NANOCOLOR*® VARIO C2 M Version for metal analysis, with big bores 8 bores for test tubes 16 mm OD and 2 bores for reaction tubes 22 mm OD, incl. power cable, protective covering, manual, software DVD and certificate	919350.1
Heating block *NANOCOLOR*® VARIO HC – with cooling system – 12 bores for test tubes 16 mm OD and ventilator, incl. power cable, protective covering, manual, data cable, software DVD and certificate	919330

NANOCOLOR® heating blocks

Technical data

Type	Programmable heating blocks for chemical-analytical digestions
Number of bores	2 x 12 à 16 mm OD (*VARIO 4*) 12 à 16 mm OD (*VARIO C2*) 8 à 16 mm OD and 2 à 22 mm AD (*VARIO C2 M*) 12 à 16 mm OD (*VARIO HC*)
Display	Colored, backlit LCD touch screen
Operation	Icon-based menu guidance via touch screen
Temperatures	6 pre-programmed temperatures 70 °C / 100 °C / 120 °C / 148 °C / 150 °C / 160 °C 6 free memory locations for individual temperature settings
Temperature range	40 °C–160 °C (1 °C increments)
Temperature stability	± 1 °C (according to DIN-, EN-, ISO- and EPA-methods)
Warm-up time	From 20 °C to 160 °C within 10 minutes
Heating times	5 pre-programmed heating times 10 min / 30 min / 60 min / 120 min / cont. 7 free memory locations for individual heating times
Time range	0 h:01 min–9 h:59 min (increments 0 h:01 min)
Safety	Replacable safety covers as contact protection Lockable protective lids Overheating protection
Interfaces	Bidirectional serial RS232, USB A (function) and USB B (Host)
Analytical quality control	With NANOCOLOR® T-Set (REF 919917) and NANOCOLOR® USB T-Set (REF 919921) Optional fully automatic calibration and generation of test certificates for instrument control and monitoring.
Languages	DE / EN / FR / ES / HU / PL / CZ / TR / DK / PT
Update	Via internet / PC and USB stick
Operating range	10 °C–40 °C; max. 80 % relative humidity (non-condensing)
Power supply	10 V–230 V ~, 50/60 Hz
Power consumption	300 / 550 W (*VARIO 4*) 150 / 300 W (*VARIO C2 / VARIO C2 M*) 150 / 550 W (*VARIO HC*)
Dimensions	290 x 287 x 146 mm (*VARIO 4 / VARIO HC*) 169 x 282 x 146 mm (*VARIO C2 / VARIO C2 M*)
Weight	Ca. 3.2 kg (*VARIO 4 / VARIO HC*) Ca. 2.0 kg (*VARIO C2 / VARIO C2 M*)
Warranty	2 years
CE	CE certified

NANOCOLOR® T-Sets
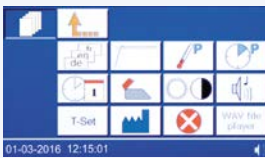
Internal quality control according to ISO 9001

NANOCOLOR® T-Sets are electronic thermal sensors for temperature control and automatic calibration of all heating blocks. To fullfil the requirements of internal quality control according to ISO 9001, the heating blocks can easily be checked with NANOCOLOR® T-Set and NANOCOLOR® USB T-Set.

Comply with demands of supervisors and authorities

- Heating curves to check temperature stability
- Electronic temperature control and fully automatic calibration with the NANOCOLOR® T-Set and NANOCOLOR® USB T-Set
- Comfortable data transfer via USB or serial interface RS232
- Easy generation of quality certificates in accordance to GLP with the NANOCOLOR® T-Set software

> **!** The NANOCOLOR® T-Sets can also be used for external temperature measurements, for example for determination of sample temperatures.

Automatic temperature control and calibration of the heating blocks

- Connect the RS232 plug of the T-Set or the USB plug of the USB T-Set to the heating block
- Place the temperature sensor into the small bore located on the safety cover
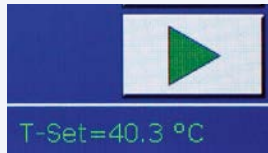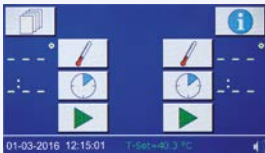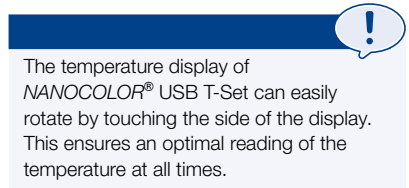

Select „T-Set" in the menu | Select program | Start the program

Universal thermometer for external temperature measurements

- Connect the RS232 plug of the T-Set or the USB plug of the USB T-Set to the heating block
- Dip the temperature sensor into the respective sample solution
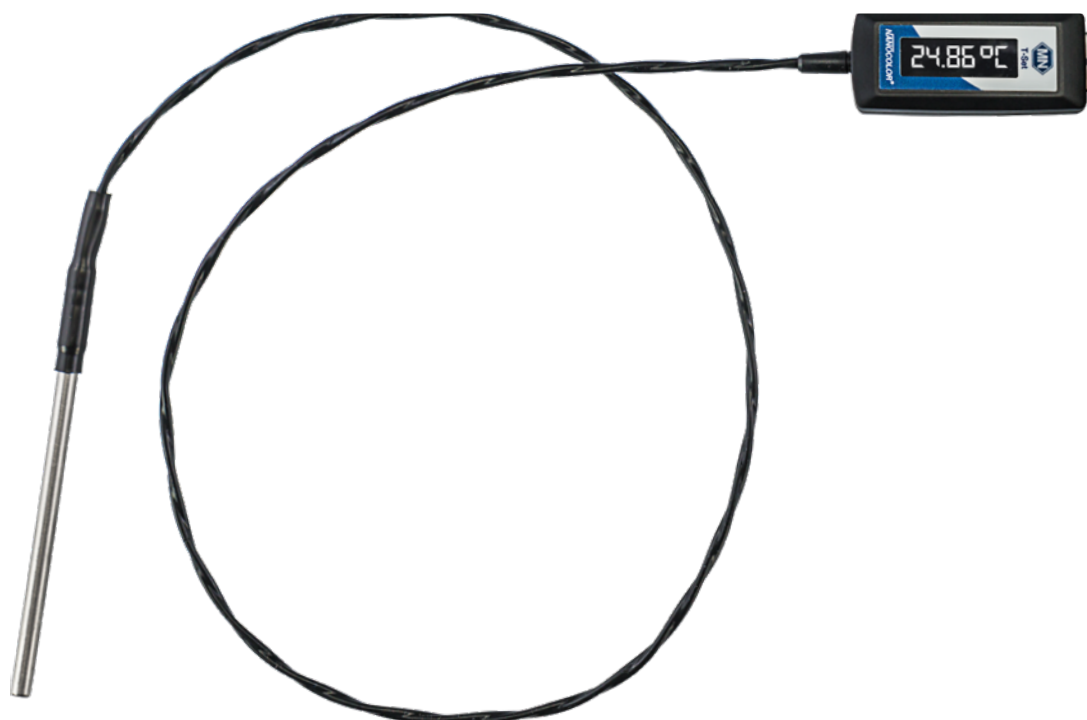- The temperature is displayed in the heating block's display

> **!** The temperature display of NANOCOLOR® USB T-Set can easily rotate by touching the side of the display. This ensures an optimal reading of the temperature at all times.

NANOCOLOR® T-Sets

Ordering information

Description	REF
NANOCOLOR® T-Set for electronic control of the temperatures and calibration of the heating blocks NANOCOLOR® VARIO 4 / VARIO C2 / VARIO C2 M / VARIO HC / VARIO 3 / VARIO compact	919917
NANOCOLOR® USB T-Set for electronic control of the temperatures and calibration of the heating blocks NANOCOLOR® VARIO 4 / VARIO C2 / VARIO C2 M / VARIO HC / VARIO Mini	919921

Technical data

	T-Set	USB T-Set
Type	Electronic thermal sensor for temperature control, calibration and generation of a test certificate for inspection equipment monitoring	
Detector	PT 1000 (95 mm length x 4 mm Ø)	
Display	–	LED-display
Operation	Via touch screen of the heating block and T-Set software	
Temperature range	0 °C–200 °C	
Accuracy	± 1 °C	
Correctness	± 0.2 °C	
Long-term stability	± 0.1 °C	
Interface	RS232	USB A
Operating range	10 °C–40 °C; max. 80 % relative humidity (non-condensing)	
Power supply	Via RS232	Via USB A
Power consumption	Max. 20 mW	
Dimensions	75 cm (length)	73 cm (length)
Weigth	Approx. 60 g	
Warranty	2 years	
CE	CE certified	
Certificate	Calibrated against calibration thermometer	

Accessories heating blocks

The complete analysis from one source

MACHEREY-NAGEL heating blocks are an important component of the *NANOCOLOR*® analysis system. By the perfect interplay of test kits, heating blocks and photometers the user is fully equipped for the daily laboratory analysis. In addition to digestions of classical parameters like COD or phosphate, some customers need special solutions, for example for digestion of metals with *NANOCOLOR*® *NanOx* Metal. MACHEREY-NAGEL offers the required accessories as full package. This guarantees the compatibility of all equipment for a reliable analysis.

Accessories

Description	REF	Content
Accessories for temperature control of heating blocks		
T-Set adapter 16 mm	919924	pack of 1
T-Set adapter 13 mm	919925	pack of 1
USB-serial-adapter for *NANOCOLOR*® *VARIO 4 / VARIO C2 / VARIO C2 M / VARIO HC / VARIO 3 / VARIO compact* and *NANOCOLOR*® T-Set	919926	pack of 1
Accessories for digestions in heating blocks		
Protective covering for *NANOCOLOR*® including contact protection *VARIO 4 / VARIO C2 / VARIO HC*, clear	919352	pack of 1
Protective covering with bores for TOC tests for *NANOCOLOR*® *VARIO 4 / VARIO C2 / VARIO C2 M / VARIO HC*, clear	919309	pack of 1
Protective covering for *NANOCOLOR*® including contact protection *VARIO C2M*	919353	pack of 1
Reducer 16 → 13 mm for *NANOCOLOR*® heating blocks	916910	pack of 8
Reducer 22 → 16 mm for *NANOCOLOR*® heating blocks	919916	pack of 2
Decomposition apparatus consisting decomposition tube, reducing adapter and absorption tube	91629	pack of 1
Tube for sample decomposition 22 mm Ø, NS 19/26 with glass stopper	91666	pack of 2
Condenser 200 mm, type KS with 3 m PE-tubing, below NS 19/26, above NS 29/32	91667	pack of 2
Absorption attachment for condenser NS 29/32	91668	pack of 1
Test tubes 16 mm OD	91680	pack of 20
Test tubes 22 mm OD	91622	pack of 2
Accessories for data transfer		
USB-cable AB for *NANOCOLOR*® *VARIO 4 / VARIO C2 / VARIO C2 M / VARIO HC*	91968	pack of 1

www.mn-net.com

MACHEREY-NAGEL