

for the automatic
serial determination of
NITROGEN



DUMATHERM® N Pro

Automated system for fast nitrogen determination acc. to Dumas

Technical Data DUMATHERM® N Pro

Data	DUMATHERM® N Pro
Sample size	0,5 mg bis 1 g
Sample capacity	1 - 64 samples
Analysis time	3 - 5 min, depending on the sample type and sample size
Recovery rate	> 99,5 %
Detection limits with Helium	0,003 - 50 mg N absolut
Detection limit with Argon	0,1 - 50 mg N absolut
Standard deviation	< 0,5 % (with standard sample preparation)
Operation	via PC* with DUMATHERM®-Manager
Temperature range Combustion furnace	400 - 1.100 °C
Temperature range Reduction furnace	400 - 1.100 °C
Temperature range Desorption furnace	50 - 350 °C
Required gases and quality	Helium (alternative Argon), quality grade 5.0 (99,999 %) Oxygen, quality grade 5,0 (99.999 %) Compressed air or nitrogen, quality grade 2.6 (99.6 %, oil- and water free)
Gas installation	Pressure regulators for high purity gas; 1/4" cylindric thread (female)
Inlet pressure helium	3 - 6 bar
Inlet pressure oxygen	3 - 6 bar
Inlet pressure compr. air / nitrogen	3 - 6 bar
Ambient temperature	15 °C < t < 35 °C
Nominal voltage	230 VAC
Dimensions W / D / H	870 x 710 x 860 mm (closed) - 1108 x 710 x 1118 (doors and protective hood opened)
Weight	ca. 85 kg
Nominal wattage DUMATHERM®	1380 W
Nominal wattage autosampler	90 W
Current	max. 6 A
Wanted digital balance	Optional, reading precision min. 0,1 mg

Order information DUMATHERM® N Pro

Order No.	Type	Description
14-0400	DT N Pro	DUMATHERM® N. 64-place, complete with: - autosampler for the automatic feeding of up to 64 samples* - Starter Kit for 1.000 combustions - Sample preparation tools - DUMATHERM®-Manager, control software*

*Computer: PC / Laptop and printer are not included in the shipment

*Requirements for PC: Windows 7® 64bit, 2 x USB-interface

for the automatic
single determination of
NITROGEN



DUMATHERM® N Duo

System for fast nitrogen determination acc. to Dumas

Technische Daten DUMATHERM® N Duo

Data	DUMATHERM® N Duo
Sample size	0,5 mg bis 1 g
Sample capacity	max. 2 samples
Analysis time	3 - 5 min, depending on the sample type and sample size
Recovery rate	> 99,5 %
Detection limits with Helium	0,003 - 50 mg N absolut
Detection limit with Argon	0,1 - 50 mg N absolut
Standard deviation	< 0,5 % (with standard sample preparation)
Operation	via PC* with DUMATHERM®-Manager
Temperature range Combustion furnace	400 - 1.100 °C
Temperature range Reduction furnace	400 - 1.100 °C
Temperature range Desorption furnace	50 - 350 °C
Required gases and quality	Helium (alternative Argon), quality grade 5.0 (99,999 %) Oxygen, quality grade 5,0 (99.999 %) Compressed air or nitrogen, quality grade 2.6 (99.6 %, oil- and water free)
Gas installation	Pressure regulators for high purity gas; 1/4" cylindric thread (female)
Inlet pressure helium	3 - 6 bar
Inlet pressure oxygen	3 - 6 bar
Inlet pressure compr. air / nitrogen	3 - 6 bar
Ambient temperature	15 °C < t < 35 °C
Nominal voltage	230 VAC
Dimensions W / D / H	870 x 450 x 710 mm (with autosampler)
Weight	ca. 65 kg
Nominal wattage DUMATHERM®	1380 W
Current	max. 6 A
Wanted digital balance	Optional, reading precision min. 0,1 mg

Order information DUMATHERM® N Duo

Order No.	Type	Description
14-0003	DT N DUO	DUMATHERM® N Duo, 2-place, complete with: - Autosampler for the manual feeding of max. 2 samples - Starter Kit for 1.000 combustion - Sample preparation tools - DUMATHERM®-Manager, control software*

*Computer: PC / Laptop and printer are not included in the shipment

*Requirements for PC: Windows 7® 64bit, 2 x USB-interface

CONSUMABLES AND ACCESSORIES

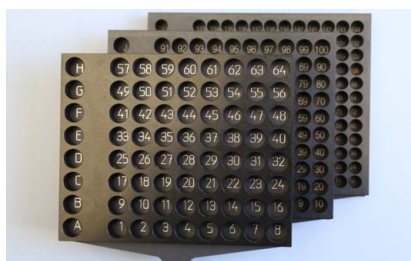
Make sure to use only original C. Gerhardt spare parts in order to obtain the best possible results. These parts have been tested thoroughly for the operation with DUMATHERM® in the C. Gerhardt application lab.

Set of Consumables - DumaSet®



Order No.	Type	Description
14-0186	DumaSet®	DUMATHERM® consumables for 1,000 combustions, containing: 2 x DumaTube®, Quartz tube für reactor 1 x DumaReact®, Combustion reactor, complete 1 x DumaCollect®, ash insert (unit with 10 pcs.) 10 x DumaFoil®, Tin foil, conditioned, (10 boxes á 100 pcs.)

Sample magazine



Order No.	Type	Description
14-0264	PTP64	DUMATHERM® Kit Sample magazine 64-place + 8, incl. collection plate, bottom plate and sample receiver
14-0265	PTP100	DUMATHERM® Kit Sample magazine 100-place + 10, incl. collection plate, bottom plate and sample receiver
14-0266	PTP144	DUMATHERM® Kit Sample magazine 144-place + 12, incl. collection plate, bottom plate and sample receiver

Copper - DumaCop®



Order No.	Type	Description
14-0046	DumaCop®	Copper for reduction, Consumable set with 5 boxes á 450 g
14-0246	DumaCop®	Copper for reduction, Consumable set with 10 boxes á 450 g

Tin foil - DumaFoil®



Order No.	Type	Description
14-0017	DumaFoil®	Tin foil, conditioned, 100 pcs.

Reactor - DumaReact®



Order No.	Type	Description
14-0245	DumaReact®	NEW - Prepacked combustion reactor, filled with chromium-free catalyst, 1 pc.

Quartz tube - DumaTube®



Order No.	Type	Description
14-0203	DumaTube®	Quartz tube for reactor, OD 26mm, L 450mm, 2mm wall thickness, 1 pc

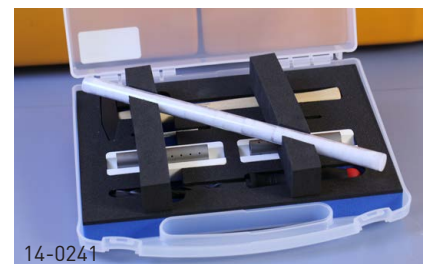
End caps



Order No.	Type	Description
14-0273		End caps for reactor small/large, content: - 10 x end caps small - 10 x end caps big

Ash insert - DumaCollect®

Order No.	Type	Description
14-0015	DumaCollect®	Ash insert for single use , with bottom, ceramics, L 100 mm, unit with 10 pcs.
14-0240	DumaCollect®steel	Ash insert made of stainless steel, for reuse
14-0241	DumaCollect®steel	StarterKit Stainless steel ash insert, complete with case: 2 x stainless steel ash insert, 30 x DumaPads®, drill, hammer, crucible half shell and pin punch to remove the ash from the crucible.



Adsorber tube - DumaCO2®



Order No.	Type	Description
14-0021	DumaCO2®	CO ₂ adsorber tube, filled with adsorbent and gas tightly closed, 6 pcs.
14-0251	DumaCO2®	CO ₂ adsorber tube, special version for CN-determination, filled with adsorbent and gas tightly closed, 6 pcs.

Quartz wool pads - DumaPads®



Order No.	Type	Description
14-0225	DumaPads®	DumaPads®, Quartz wool pads combibox, content: - 30 pcs. small + 30 pcs. large
14-0274	DumaPads®	Quartz wool pads small , content: - 2 x 30 pcs.
14-0275	DumaPads®	Quartz wool pads large , content: - 2 x 30 pcs.

Absorbent - DumaSorb®



Order No.	Type	Description
14-0022	DumaSorb®	Absorbent for liquid samples, 25 g

Standard - DumaEDTA®



Order No.	Type	Description
14-0032	DumaEDTA®	EDTA Calibration Standard, 10g

Teflon tubing assembled



Order No.	Type	Description
14-0130		Purge line, Teflon, OD 2mm, L 250mm, with ferrules + nuts
14-0131		Teflon tubing, OD 2mm, ID 1mm, L 450mm, with ferrules + nuts

Accessories for Autosampler



Order No.	Type	Description
14-0272		O-rings for autosampler N64+, order no. 14-0063, set of 3 pcs.

Absorption trap



Order No.	Type	Description
14-0061		Absorption trap for water complete (Glass part, O-rings and 2 endcaps)
14-0219		Absorbent for water absorption trap 14-0061, refill 100g

Accessory for absorption trap



Order No.	Type	Description
14-0243		Wool for water absorption trap, 5g

Weighing tool



Order No.	Type	Description
14-0025		Encapsulating device for samples, three-part

Filling funnel



Order No.	Type	Description
14-0218		Funnel for the filling of the reactors and traps

Isolation for reactors



Order No.	Type	Description
14-0083		Reactor bottom insulation collars, 2 pcs
14-0084		Reactor top insulation collars, 2 pcs

Helium detector



Order no.	Type	Description
14-0008	LD239	Helium leakage detector, including: - battery charger, 230 V - USB-cable

Leak Troubleshooting Kit



Order No.	Type	Description
14-0220	LTS	Leak Troubleshooting Kit, including : - Bypass tubing very useful for troubleshooting - Push-in fitting for 4mm PUN tube - Connector for TCD, top - Single head wrench SW8 - Spanner SW10

Rod for filling



Order No.	Type	Description
14-0065		Rod for reactor tube filling

Tweezer



Order No.	Type	Description
14-0072		Tweezer, 1 pc

Wrench for reactor



Order No.	Type	Description
14-0288		Special Wrench for top reactor nut, 1 pc

Tool set for DUMATHERM



Order No.	Type	Description
14-0057		Tool set DUMATHERM, including: 1 x Right-angle screwdriver, 5/64" 1 x Right-angle screwdriver 1/8" 1 x Right-angle screwdriver 9/64" 1 x Right-angle screwdriver 5/32"

Special tool for DUMATHERM®



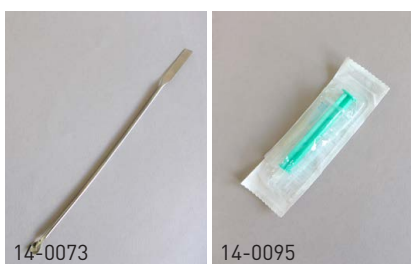
Order No.	Type	Description
14-0268		Screw tool kit for sample feed cylinder DUMATHERM®

Special tool for DUMATHERM®



Order No.	Type	Description
14-0064		Tool for taking out reactor tubes

Sample outtaking solid / liquid



Order No.	Type	Description
14-0073		Spatula for solid samples, 1 pc
14-0095		Syringe, 1 ml for liquid samples, 1 pc

Sealing for absorption trap



Order No.	Type	Description
14-0081		Silicone seal for water absorption trap, 2 pcs

Upgrade Kit 17



Order No.	Type	Description
14-0049		Upgrade Kit 17 - Safety trap gas outlets

Sealing for quartz tube



Order No.	Type	Description
14-0020		Seal for top of quartz tube, black, D 26mm, 4 pcs
14-0019		Seal for bottom connector, 4 pcs

Gas pipe by the metre



Order No.	Type	Description
1002022		Polyurethan tubing AD 4 mm, ID 2.5 mm, L 5 m
14-0085		Teflon tubing, AD 2 mm, ID 1 mm, L 5 m
14-0129		Stainless-steel tubing, OD 2mm, ID 1mm, by the metre

Adapter for gas pipes



Order No.	Type	Description
14-0126		Adapter 1/4", for PU-gas pipe 4mm
14-0125		Adapter 1/4", for gas pipe 2mm
14-0128		Adapter 3/8", for PU-gas pipe 4mm
14-0127		Adapter 3/8", for gas pipe 2mm

Stand



Order No.	Type	Description
14-0076		Metal stand for supporting reactor tubes

Reactor connection

Order No.	Type	Description
14-0075		Bottom reactor connection, Teflon, D 4 mm, with nuts and ferrules (standard)
14-0236		Bottom reactor connection, Teflon, D 6 mm, with ferrules and nuts
14-0231		Upgrade Kit 18 - Bottom Connection DUMATHERM®, complete, D 6mm



Accessories gas pipes

Order No.	Type	Description
14-0069		Ferrule for 4 x 0.75mm tubing, 6 pcs
14-0070		Nuts M6 x 0.75mm, for 2mm stainless steel tubing, 10 pcs
14-0071		Ferrules for 2mm stainless steel tubing, 10 pcs



Ash finger extractor



Order No.	Type	Description
14-0068		Ash finger extractor, 1 pc For removing and inserting the hot ash inserts

Cable

Order No.	Type	Description
10-0057		Mains cable AKE, 3 x 1.0 mm ² , L 1.5m, rubber-coated
10-0197		Data cable DK23, RS232 (red), 3m, connection adapter - PC)
1003423		USB fitting cable sw CU-VLMG-30 L: 3 m
10-0198		USB/serial RS232 converter, 9 pin
1005407		DT power supply AC/DC, 240 V, for autosampler N64
1005429		USB cable external, for autosampler N64
14-0262		USB Hub 4-place

SUPPORT AND SERVICE

In addition to its high quality instruments, C. Gerhardt offers comprehensive services to maintain the functionality and efficiency of your equipment.

INSTALLATION / EQUIPMENT QUALIFICATION

Selection	Type	Description
[]	ABI-DT	Setup and installation DUMATHERM®: - connection of the system - easy performance check
[]	MEB-DT	Method creation and guidance DUMATHERM®: - Guidance and intense instruction of the system - Creation of a first method - applicative advice and support
[]	IQ-DT	Installation Qualification DUMATHERM® incl. documentation
[]	OQ-DT	Operational Qualification DUMATHERM® incl. documentation
[]	PQ-DT	Performance Qualification DUMATHERM® incl. documentation
[]	GQF-DT	Equipment qualification DUMATHERM®, complete service package incl.: - Setup and installation - Creation of a methode and advice - Complete IQ / OQ / PQ incl. documentation - DUMATHERM® Document folder - Training document - Certificate...

SERVICING AND MAINTENANCE CONCEPTS

For detailed information on servicing and maintenance concepts, please contact your local authorised C. Gerhardt representative.

WORKSHOPS / SEMINARS / APPLICATIONS TRAINING

For detailed information on trainings and workshops, please contact your local authorised C. Gerhardt representative.

TABLE OF CONFIGURATION

Please arrange the required system

DUMATHERM®

Quantity	Order No.	Type	Description

CONSUMABLES / ACCESSORIES

Quantity	Order No.	Type	Description

SUPPORT AND SERVICE

Quantity	Order No.	Type	Description

Send offer to:

Customer No.	
Company	
Name	
Address	
Tel.	
E-mail	
Web	

Presented by: