



## DUMATHERM® - FAST NITROGEN DETERMINATION

Automated system for fast nitrogen determination acc. to Dumas

### Technical Data DUMATHERM®

Data	DUMATHERM®
Sample size	0,5 mg - 1 g
Sample capacity	1 - 64 positions
Analysis time	3 - 5 min, depending on the sample type and sample size
Recovery rate	> 99,5 %
Detection limits	0,003 - 50 mg N absolut
Standard deviation	< 0,5 %
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, 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 / H / D	800 x 710 x 730 mm (with autosampler)
Weight	ca. 85 kg
Nominal wattage DUMATHERM®	1380 W
Nominal wattage Probenwechsler	90 W
Current	max. 6 A
Wanted digital balance	optional, precision min. 0.1 mg

### Order information DUMATHERM®

Order No.	Type	Description
14-0400	DT N64+	DUMATHERM® DT N64+, 64-place, with Starter Kit for 1.000 combustions, with autosampler for the automated insertion up to 64 samples.

## 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.)

### 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
14-0244	DumaReact®	Prepacked combustion reactor, filled with HT and LT 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

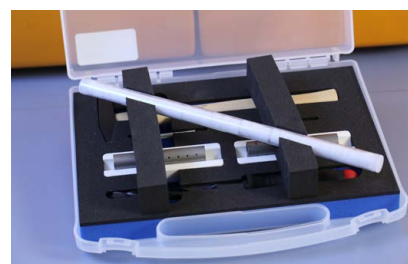
## End caps



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 <b>for single use</b> , with bottom, L 100 mm, unit with 10 pcs.
14-0240	ABE	Stainless steel ash insert <b>for reuse</b>
14-0241	StarterKit	StarterKit for stainless steel ash insert, complete with suitcase: 2 x stainless steel ash insert, 30 x DumaPads®, Drill, Hammer and pin punch to remove the ash from the crucible.



## Adsorber tube - DumaCO2®



Order No.	Type	Description
14-0021	DumaCO2®	CO <sub>2</sub> adsorber tube, filled with adsorbent and gas tightly closed, 6 pcs.
14-0251	DumaCO2®	CO <sub>2</sub> 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 <b>small</b> , content: - 2 x 30 pcs.
14-0275	DumaPads®	Quartz wool pads <b>large</b> , 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, set of 3 pcs.

### Absorption trap



Order No.	Type	Description
14-0061		Absorption trap for water complete (Glass parts, O-rings and endcaps, 1pc.)
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

### Sample preparation



Order No.	Type	Description
14-0087		Sample preparation plate, with plunger

### Weighing tool



Order No.	Type	Description
14-0025		Encapsulating device for samples, 1 pc

### 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 - with battery charger, 230V - 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
14-0079		Special Wrench for top reactor nut, 1 pc

### Tool set for DUMATHERM



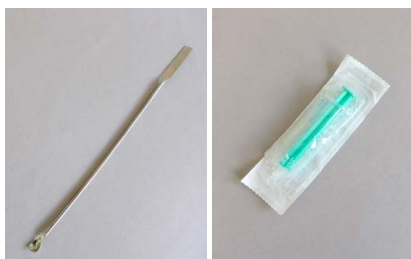
Order No.	Type	Description
14-0057		Tool set DUMATHERM, including: 1 x Right-angle screwdriver, 5/64" 1 x Right-angle screwdriver 1/8" 1 x Right-angle screwdriver 9/64" 1 x Right-angle screwdriver 5/32"

### Special tool for DUMATHERM



Order No.	Type	Description
14-0086		Tool for autosampler piston
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
14-0094		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
14-0030		Stainless-steel wire 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

### 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





## Stand



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

## 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 <sup>2</sup> , 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:

