

# RAPID DIGESTION UNIT

FOR DIGESTIONS WITHOUT DELAY IN BOILING



TURBOTHERM is a digestion unit based on infrared technology. The direct heat input by infrared radiation provides short heating and cooling times: Only 10 minutes are needed to bring 12 samples to boil.

TURBOTHERM is flexible: Using the respective insert rack, it can be combined with digestion tubes of 100 to 800 ml volume. The console attachment can take the insert rack, the exhaust equipment and the drip tray, and thus, facilitates convenient working.



## COMFORTABLE

- ✦ During cooling, the insert rack with the digested samples is safely put on the console attachment
- ✦ The drip tray can be stored within the unit
- ✦ The heating elements cool down quickly
- ✦ The improved housing provides an optimal heat distribution
- ✦ The scrubber unit TURBOSOG or the water-free working VACUSOG for separation and neutralization of inorganic acid fumes can be connected and automatically controlled via the TURBOTHERM unit

## FLEXIBLE

- ✦ Quick heat-up and cooling down of the samples
- ✦ Comfortable operating unit with fully coloured display
- ✦ For smallest and big sample amounts including heavy foaming samples, such as sewage and sludge
- ✦ Upgradeable with variable insert racks for different glass sizes:  
12 x 100 ml - 6 x 250 ml - 12 x 250 ml - 4 x 400 ml  
4 x 400 ml BS - 4 x 800 ml

## STATE-OF-THE-ART CONTROL

- ✦ Microprocessor controlled
- ✦ Up to 99 programmes can be stored
- ✦ Contains pre-defined methods
- ✦ Infinitely variable heating power and time periods
- ✦ Ergonomically designed operating unit with variable inclination
- ✦ Continuous display of running digestion status
- ✦ Correction of running programme at any time
- ✦ ISO 17025 conform data management regarding:
  - traceability
  - different user levels with defined rights and password protection
  - Recording and recalling of all relevant process data

## TECHNICAL DATA

Dimensions W x D x H	636 x 430 x 740 mm
Weight	approx. 29 kg
Nominal power max.	2000 W
Nominal voltage	230 V, 50/60 Hz
Tube size	100 ml, 250/300 ml, 400 ml, 800 ml

# TURBOTHERM RAPID DIGESTION UNIT



Digestion unit with infrared technology and modern control. The quick alternative to the KJELDATHERM digestion block. Tried and tested C. Gerhardt technology specifically designed for Kjeldahl digestion of a wide variety of samples with nitrogen content in the micro and macro range. Ideal for subsequent Kjeldahl distillation with the VAPODEST distillation units.

Also for use as a multifunctional, programmable hotplate for inorganic acid digestion.

**Scope of delivery** Complete system, with:

- Digestion tubes
- Insert rack
- Exhaust manifold
- Instruction manual

## TURBOTHERM TTs

Type	TTs100	TTs625	TTs125	TTs440	TTs480
<b>TECHNICAL DATA</b>					
Heating places	12	6	12	4	4
Size of tubes [ml]	100	250 - 300	250 - 300	400	800
Temperature max. [°C]	-	-	-	-	-
Programs	99 <sup>1)</sup>	99 <sup>1)</sup>	99 <sup>1)</sup>	99 <sup>1)</sup>	99 <sup>1)</sup>
Nominal wattage max. [W]	2000	2000	2000	2000	2000
Dimensions W / D / H [mm]	636 / 430 / 740	636 / 430 / 740	636 / 430 / 740	636 / 430 / 740	636 / 430 / 740
Weight [kg]	ca. 29	ca. 29	ca. 29	ca. 29	ca. 29
Nominal voltage [V]	230 / 115 <sup>2)</sup>	230 / 115 <sup>2)</sup>	230 / 115 <sup>2)</sup>	230 / 115 <sup>2)</sup>	230 / 115 <sup>2)</sup>
Frequency [Hz]	50 / 60	50 / 60	50 / 60	50 / 60	50 / 60
<b>DELIVERS</b>					
Digestion tubes	12 x	6 x	12 x	4 x	4 x
TURBOTHERM basic system	1 x	1 x	1 x	1 x	1 x
Insert rack for tubes	1 x	1 x	1 x	1 x	1 x
Exhaust manifold with drip tray	1 x	1 x	1 x	1 x	1 x
Isoversinic tubing	1,5 m	1,5 m	1,5 m	1,5 m	1,5 m
Console	1 x	1 x	1 x	1 x	1 x
<b>ORDER INFORMATION</b>					
Version 230 V	12-0602	12-0604	12-0606	12-0608	12-0610
Version 115 V	12-0603	12-0605	12-0607	12-0609	12-0611

1) each program is available with 40 different heating steps that have programmable times and heating capacities

2) Version 115 V is equipped with an additional power connection cable for connecting the VACUSOG/TURBOSOG extraction unit.

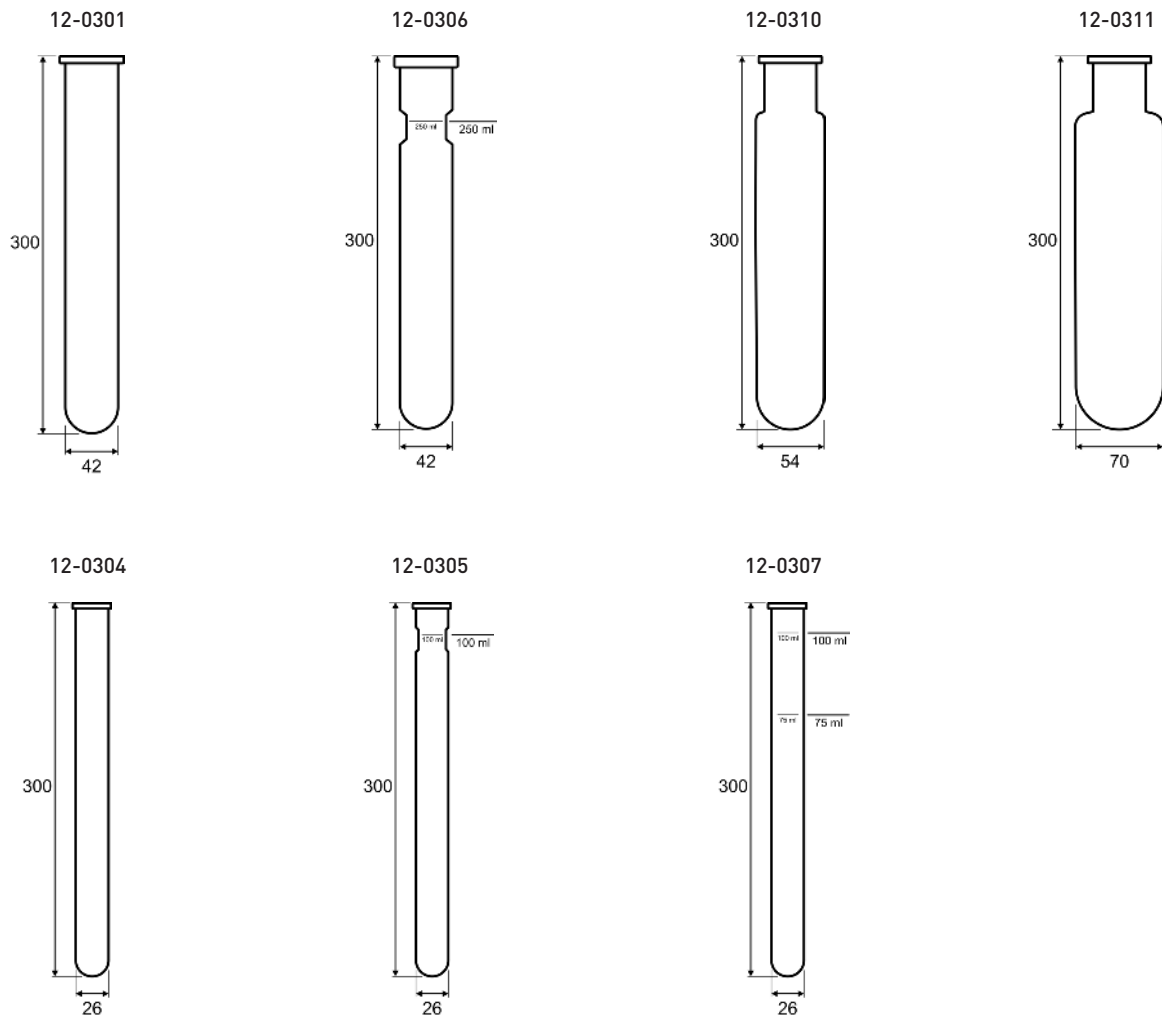
### CONSUMABLES AND ACCESSORIES

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 KJELDATHERM and TURBOTHERM in the C. Gerhardt application lab.

#### KJELDAHL-DIGESTION TUBES AND KJELDAHL-FLASKS

All tubes are made of high standard Duran® material.

Order No.	Type	Description	for type
12-0301	KTG 250	Kjeldatherm digestion tube, 300 ml - 10 pcs	TTs625, TTs125
12-0306	KTG/E 250	Kjeldatherm digestion tube, macro 300 ml, with constriction + calibrated at 250 ml	TTs625, TTs125
12-0310	KDD400	Jumbo digestion tube 400 ml - 4 pcs	TTs440
12-0311	KDD800	Jumbo digestion tube 800 ml - 4 pcs	TTs480
12-0304	KMT	Kjeldatherm digestion tube, micro 100 ml - 10 pcs	TTs100
12-0305	KMT/E	Kjeldatherm digestion tube, micro 100 ml with constriction + calibrated at 100 ml	TTs100
12-0307	KMT	Kjeldatherm digestion tube, micro, 100 ml, calibrated at 100 ml + 75 ml	TTs100



## Catalyst tablets



Order No.	Type	Description
12-0326	Se	KJELCAT-tablets, tin of 1,000 pcs 3.5 g $K_2SO_4$ + 0.0035 g Se
12-0328	Cu	KJELCAT-tablets, tin of 1,000 pcs 5.0 g $K_2SO_4$ + 0.5 g $CuSO_4 \times 5H_2O$
12-0329	CuTi	KJELCAT-tablets, tin of 1,000 pcs 5.0 g $K_2SO_4$ + 0.15 g $CuSO_4 \times 5H_2O$ + 0.15 g $TiO_2$
12-0336	Cu light	KJELCAT-tablets, tin of 1,000 pcs 5.0 g $K_2SO_4$ + 0.1 g $CuSO_4 \times 5H_2O$

## Antifoam tablets



Order No.	Type	Description
12-0332	AS	Antifoam extra tablets, tin with 1,000 pcs 0.97 $Na_2SO_4$ + 0.03 g silicone antifoam

## Weighing paper



Order No.	Type	Description
12-0353	WP	Weighing paper, poor in $N_2$ , pack of 500

## Insert rack for TURBOTHERM



Order No.	Type	Description
12-0277	EG12-100	Insert rack for 12 x 100 ml tubes, for TTs100
12-0269	EG625	Insert rack for 6 x 250/300 ml tubes, for TTs625
12-0273	EG125	Insert rack for 12 x 250/300 ml tubes, for TTs125
12-0271	EG440	Insert rack for 4 x 400 ml tubes, for TTs440
12-0272	EG480	Insert rack for 4 x 800 ml tubes, for TTs480

## Exhaust manifold for TURBOTHERM-systems



Order No.	Type	Description
12-0281	AV12-100	Exhaust manifold for 12 x 100 ml tubes, for TT100
12-0278	AV6	Exhaust manifold for 6 x 250/300 ml tubes, for TT625
12-0279	AV4	Exhaust manifold for 4 x 400 / 4 x 800 ml tubes, for TTs440 and TTs480
12-0280	AV125	Exhaust manifold for 12 x 250/300 ml tubes, for TTs125

VACUSOG Vacuum Scrubber unit



Order No.	Type	Description
12-0779	VS	<p>VACUSOG gas scrubber for effective extraction of large quantities of inorganic gases. A water connection is not necessary. Suitable for all TURBOTHERM and KJELDATHERM® units.</p> <ul style="list-style-type: none"> <li>- Nominal voltage: 115 - 230 V, 50/60 Hz</li> <li>- Current consumption: 0,4 - 1 A</li> <li>- Weight: approx. 22 kg</li> <li>- Dimensions (WxDxH): 342 x 463 x 490 mm</li> </ul> <p>For more informations see „Product data sheet VACUSOG“</p>

Additional cooling unit for VACUSOG



Order No.	Type	Description
12-0786	ZKV	<p>The ZKV additional cooler was specifically designed for water separation in Kjeldahl digestion in water. The system is installed on the side next to the VACUSOG and connected to the cooling water supply in the laboratory. Complete with water inlet and outlet hose and cooling water regulation:</p> <ul style="list-style-type: none"> <li>- Cooling water consumption: 0 - 5 l/min</li> <li>- Cooling water pressure: 0 - 6 bar</li> <li>- Nominal voltage: 24 VDC</li> <li>- Dimensions, closed (WxDxH): 160 x 400 x 490 mm</li> <li>- Dimensions, open (WxDxH): 160 x 400 x 720 mm</li> </ul>

TURBOSOG Scrubber unit



Order No	Type	Description
12-0057	TUR/K	<p>TURBOSOG scrubber unit. Condenses and neutralizes aggressive acid fumes, suited for all TURBOTHERM systems:</p> <ul style="list-style-type: none"> <li>- Nominal voltage: 230 V, 50 Hz</li> <li>- Nominal wattage: 205 W</li> <li>- Weight: 19 kg</li> <li>- Dimensions: W 330 / D 450 / H 420 mm</li> </ul> <p>For more informations see „Product data sheet TURBOSOG“</p>

Additional cooling unit for TURBOSOG



Order No.	Type	Description
12-0361	ZKE	<p>Additional cooling unit for TURBOSOG For efficient separation of condensate in water digestions.</p>

Water jet pump WSP



WSP

Order No.	Type	Description
10-0088	WSP	Water jet pump. Condenses and neutralizes aggressive acid fumes. For occasional use with low sample throughput. Suitable for all digestion units TURBOTHERM and KJELDATHERM®.

Drip tray



Order No.	Type	Description
1007314	TWS	Drip tray for TURBOTHERM TTs

Tubes



Order No.	Type	Description
10-0091	ISO	Isoversinic-tubing, black, 1,5 m Connecting tube from TURBOSOG/VACUSOG to exhaust manifold of digestion unit.

GL-Screw caps for laboratory bottles



Order No.	Type	Description
1004320		Screw cap GL14, nat. white
1004321		Screw cap GL18, nat. white
1004322		Screw cap GL32, nat. white
1004323		Screw cap GL45, nat. white
1000358		Silicone seal GL 14 with connection, straight
1000356		Silicone seal GL 18
1000357		Silicone seal GL 32
1000355		Silicone seal GL 45

Spare parts for exhaust manifold AV



1000185

1000471

Order No.	Type	Description	suitable for Exhaust manifold
1001449	AK12-100	Suction head glass, 12-place, 100 ml	AV12-100
1000185	AK12	Suction head glass, 12-place, 250 ml	AV125
1000186	AK6	Suction head glass, 6-place	AV6
1000184	AK4	Suction head glass, 4-place	AV4
1000471	PT50	PTFE-sealing ring 50 x 18 x 6 mm,	AV6, AV4, AV125
1000470	PT36	PTFE-sealing ring 36 x 16,5 x 3 mm,	AV12-100

Mains cable



Order No.	Type	Description
10-0057		Mains cable 230 V, 1,5 m
1002243		Mains cable 115 V, 2 m

## TABLE OF CONFIGURATION

Please arrange the required system

### DIGESTION SYSTEM / TYPE

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:

