

# TM - TRACE METAL DIGESTION UNITS

## TM digestion unit with lift

For determining the acid-soluble proportion of metals in sewage sludges, sediments and soils with aqua regia, e.g. in accordance with DIN 38414/ German standard method.

Digestion in aluminium heating block with precise temperature control.

Tried and tested C. Gerhardt technology.

Available for 8 or 20 samples.

- Range of functions**
- Ensures transparency and traceability of the digestion process
  - Methods can be defined and stored
  - Assignment of user rights
  - USB interface for data export
  - Pre-heat function
  - Automatic Lift
  - Automatic control of TURBOSOG and cooling water valve



## TRACE METAL DIGESTION UNIT with lift

Type	SMA-L 8s	SMA-L 20s
<b>TECHNICAL DATA</b>		
Heating places	8	20
Size of tubes [ml]	250/300	250/300
Temperature max. [°C]	240	240
Temperature control accuracy [%]	+/- 0.5	+/- 0.5
Programs	99 <sup>1)</sup>	99 <sup>1)</sup>
Display size [inch"]	3.5	3.5
Power consumption [W]	1160	2360
Dimensions W / D / H [mm]	515 / 483 / 990 <sup>2)</sup>	515 / 483 / 990 <sup>2)</sup>
Weight [kg]	approx. 48	approx. 63
Nominal voltage [VAC]	230	230
Frequency [Hz]	50 - 60	50 - 60
<b>DELIVERS</b>		
KJELDATHERM digestion block with two-tier console and operating unit	1 x	1 x
Insert rack EB for tubes	1 x (12-0710)	1 x (12-0722)
Insert rack for condensers	1 x (12-0249)	1 x (12-0250)
COD/SMA digestion tubes KMG, 250 ml (with KS40)	8 x (12-0321)	20 x (12-0321)
COD/SMA condensers SMK (with KS40)	8 x (12-0322)	20 x (12-0322)
Trace metal cooling trap	8 x (12-0320)	20 x (12-0320)
PVC-exhaust manifold	1 x (12-0298)	1 x (12-0299)
Water jet pump	1 x (10-0088)	1 x (10-0088)
<b>ORDER INFORMATION</b>		
Version 230 V	12-0752	12-0750

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

2) Height in lower lift position, in upper lift position + 100 mm

**TM digestion unit without lift**

Digestion in aluminium heating block with precise temperature control.  
 Identical to type SMA-L but without Motorliftconsole.  
 The user has to lift and lower the insert rack by hand.  
 Tried and tested C. Gerhardt technology.

- Range of functions**
- Ensures transparency and traceability of the digestion process
  - Methods can be defined and stored
  - Assignment of user rights
  - USB interface for data export
  - Pre-heat function



**TRACE METAL DIGESTION UNIT without Lift**

Type	SMA 8s
<b>TECHNICAL DATA</b>	
Heating places	8
Size of tubes [ml]	250/300
Temperature max. [°C]	240
Temperatur control accuracy [%]	+/- 0.5
Programmable methods	99 <sup>1)</sup>
Display size [inch"]	2.4
Nominal wattage [W]	1000
Dimensions W / D / H [mm]	515 / 483 / 990 <sup>2)</sup>
Weight [kg]	ca. 33
Nominal voltage [VAC]	230
Frequency [Hz]	50 - 60
<b>DELIVERS</b>	
KJELDATHERM digestion block with two-tier console and operating unit	1 x
Insert rack for tubes SMG, 250 ml	1 x (12-0710)
Insert rack for water condenser SMK	1 x (12-0249)
COD/SMA digestion tubes KMG, 250 ml (with KS40 Schliff)	8 x (12-0321)
COD/SMA water condenser SMK (with KS40 Schliff)	8 x (12-0322)
Trace metal cooling trap	8 x (12-0320)
PVC-exhaust manifold	1 x (12-0298)
Water jet pump	1 x (10-0088)
<b>ORDER INFORMATION</b>	
Version 230 V	12-0754

1) Each program is available with 40 different heating steps that have programmable times and heating capacities  
 2) Height in lower lift position, in upper lift position + 100 mm

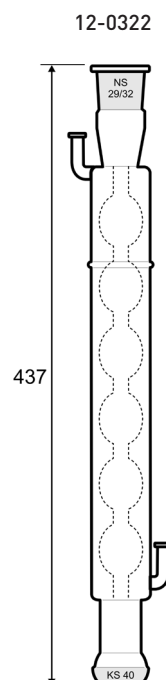
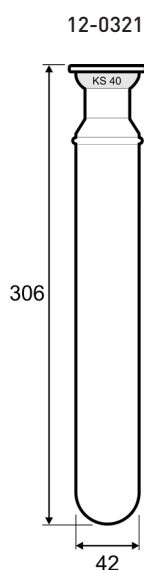
## CONSUMABLES AND ACCESSORIES

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 TM digestion units in the C. Gerhardt application lab.

### COD AND SMA TUBES

All tubes are made of high standard Duran® material.

Order No.	Type	Description
12-0320	SMF	Cooling trap SMF, acc. to DIN, with NS29, 1 pc.
12-0321	SMG	COD/SMA tube SMG, 250ml, with KS40, (for automatic COD units), 4 pcs.
12-0322	SMK	COD/SMA water condenser SMK, ball condenser, with KS40, 1 pc.



### INSERT RACKS FOR TUBES for SMA with lift



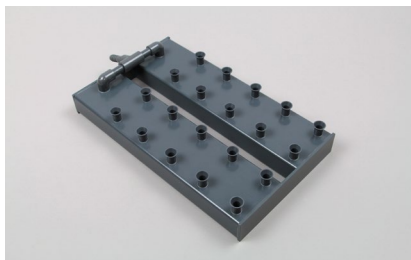
Order No.	Type	Description
12-0722	EB20	Insert rack, 20-place, white, for SMA-L and CSB-L system, for 20 x 250 ml tubes SMG
12-0710	EB8	Insert rack, 8-place, white, for SMA/SMA-L and CSB-L system, for 8 x 250 ml tubes SMG

### INSERT RACK FOR WATER CONDENSER



Order No.	Type	Description
12-0250	EB20K	Insert rack, 20-place, white, for COD/SMA systems for 20 x water condenser SMK
12-0249	EB8K	Insert rack, 8-place, white, for COD/SMA systems for 8 x water condenser SMK

PVC-EXHAUST MANIFOLD



Order No.	Type	Description
12-0299	EB20	PVC exhaust manifold APP20, 20-place, for SMA20, w/o water jet pump, w/o Isoversinic tube
12-0298	EB8	PVC exhaust manifold APP8, 8-place, for SMA system, w/o water jet pump, w/o Isoversinic tube

COOLING WATER VALVE



Order No.	Type	Description
12-0775	WTZ	Cooling water valve, 110 - 230 V, for the cooling water regulation of the SMA- and CSB-digestion units with lift.

Communication cable



Order No.	Type	Description
1007118	PK45	KT Patchcable RJ45, yellow, 2 m Connecting cable between controller and digestion block

VACUSOG Vacuum Scrubber unit



Order No.	Type	Description
12-0779	VS	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. - Nominal voltage: 115 - 230 V, 50/60 Hz - Current consumption: 0,4 - 1 A - Weight: approx. 22 kg - Dimensions, closed (W/D/H): 342 / 463 / 490 mm - Dimensions, open (W/D/H): 342 / 463 / 720 mm For more informations see „Product data sheet VACUSOG“

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.</p> <p>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 (W/D/H): 160 / 400 / 490 mm</li> <li>- Dimensions, open (W/D/H): 160 / 400 / 720 mm</li> </ul>

SCRUBBER UNITS



Order No.	Type	Description
12-0057	TUR/K	<p>TURBOSOG scrubber unit. Condenses and neutralizes aggressive acid fumes, suited for all KJELDATHERM 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>
10-0088	WSP	Water jet pump. Condenses and neutralizes aggressive acid fumes, suitable for all digestion units KJELDATHERM.

Additional cooling unit



Order No.	Type	Description
12-0361	ZKE	<p>Additional cooling unit for TUR/K. To be attached at the side of the TURBOSOG and connected to the water supply. Separates the water from digestion gas - for a big number of aqueous samples.</p>

Laboratory bottles for TURBOSOG



Order No.	Type	Description
12-0358	EFL	Spare bottle, 2000 ml for Turbosog complete with screw cap GL45 + silicone seal GL45

Glass pipes for TURBOSOG

Order No.	Type	Description
12-0359	KOA	Downpipe for condensate bottle, short
12-0360	WAA	Downpipe for washing bottle, long

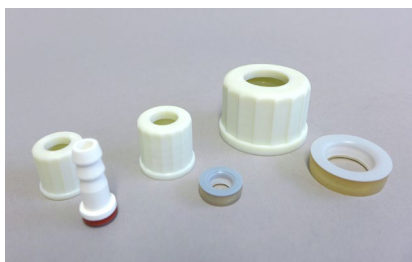


Tubes



Order No.	Type	Description
1000393	AWS	Cooling water outlet tubing, 22x29 mm, 2 m long
10-0091	ISO	Isoversinic-tubing 12x17mm, black

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

## 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	

