



**VAPODEST 50S / 50S CAROUSEL - Systems in comparison**

Standard configuration	VAP50s	VAP50s carousel
Automatic addition H <sub>3</sub> BO <sub>3</sub>	●	●
Automatic addition H <sub>2</sub> O	●	●
Automatic addition NaOH	●	●
Programmable reaction time	●	●
Programmable distillation time	●	●
Variable steam power 30 - 100 %	●	●
Automatic suction of sample waste	●	●
Automatic suction of the receiver	●	●
Selection of language	●	●
Optical and acoustical error messages	●	●
Main programs	any	any
Stand-by-Function	●	●
Protection door with safety switch	●	●
Automatic check of chemical reservoir	●	●
Kjeldahl digestion tubes can be used <sup>1)</sup>	●	●
Kjeldahl-flasks can be used <sup>1)</sup>	●	-
Automatic titration	●	●
Micro dosing pump for titration	●	●
RS 485 interface	●	●
USB-interface	●	●
Connection for scale	●	●
Result print out	●	●
Autosampler (carousel)	-	●
Set of storage tanks	-	●

● = Standard configuration

1) = see digestion tubes and Kjeldahl-flasks on page 3

**SCOPE OF DELIVERY**

Typ	VAP 50s	VAP 50s carousel
Distillation system	1 x	1 x
Autosampler (carousel)	-	1 x
KJELDATHERM digestion tube	1 x	depending on carousel 20 x, 16 x or 12 x
pH-electrode	1 x	1 x
Buffer solution pH7	1 x	1 x
Buffer solution pH4	1 x	1 x
KCL-solution	1 x	1 x
CD with VAPODEST Manager	1 x	1 x
PC connection set	1 x	1 x
Tubing set	1 x	1 x

**Computer:** Personal computer and printer are not included the delivery.

**Operating system:** Windows XP®, Vista®, Windows 7®, 1 x USB-interface

**TECHNICAL DATA**

Type	VAP 50s	VAP 50s carousel
Cooling water consumption [l/min]	ca. 5	ca. 5
Distillation time [min]	2 - 4	2 - 4
Recovery rate [%]	> 99,5	> 99,5
Reproducibility [%]	+/- 1	+/- 1
Detection limit N [mg]	0,1	0,1
Rated voltage [VAC]	230	230
Frequency [Hz]	50	50
Rated power input [W]	1600	1830
Weight [kg]	ca. 37	198
Dimensions W / D / H [mm]	440 / 340 / 690	1010 <sup>1)</sup> / 670 / 1655

1) 1290 mm with board attached on the side for monitor or printer

**ORDER INFORMATIONS**

Order No.	Type	Description
12-0040	VAP50s	VAPODEST 50s, Distillation system, Version Standard, especially for the Kjeldahl determination
12-0470	VAP50s	VAPODEST 50s, Distillation system, Version acid resistant, Equipped with acid resistant pumps <sup>1)</sup>
12-0048	VAP50s OT	VAPODEST 50s OT, Distillation system, identical to 12-0040, prepared for a possible upgrade to a VAPODEST 50s carousel at a later time
12-0050	VAP50s C	VAPODEST 50s carousel, distillation system complete with carousel for 20 x 250/300 ml tubes
12-0051	VAP50s C	VAPODEST 50s carousel, distillation system complete with carousel for 16 x 400 ml tubes
12-0052	VAP50s C	VAPODEST 50s carousel, distillation system complete with carousel for 12 x 800 ml tubes
12-0053	VAP50s C	VAPODEST 50s carousel, distillation system complete with carousel for 16 x BS 400 ml tubes

Special voltages on request

1) special for dosing of phosphoric acid max. 85 % and hydrochloric acid max. 5 % - more acids on request

## CONSUMABLES AND ACCESSORIES

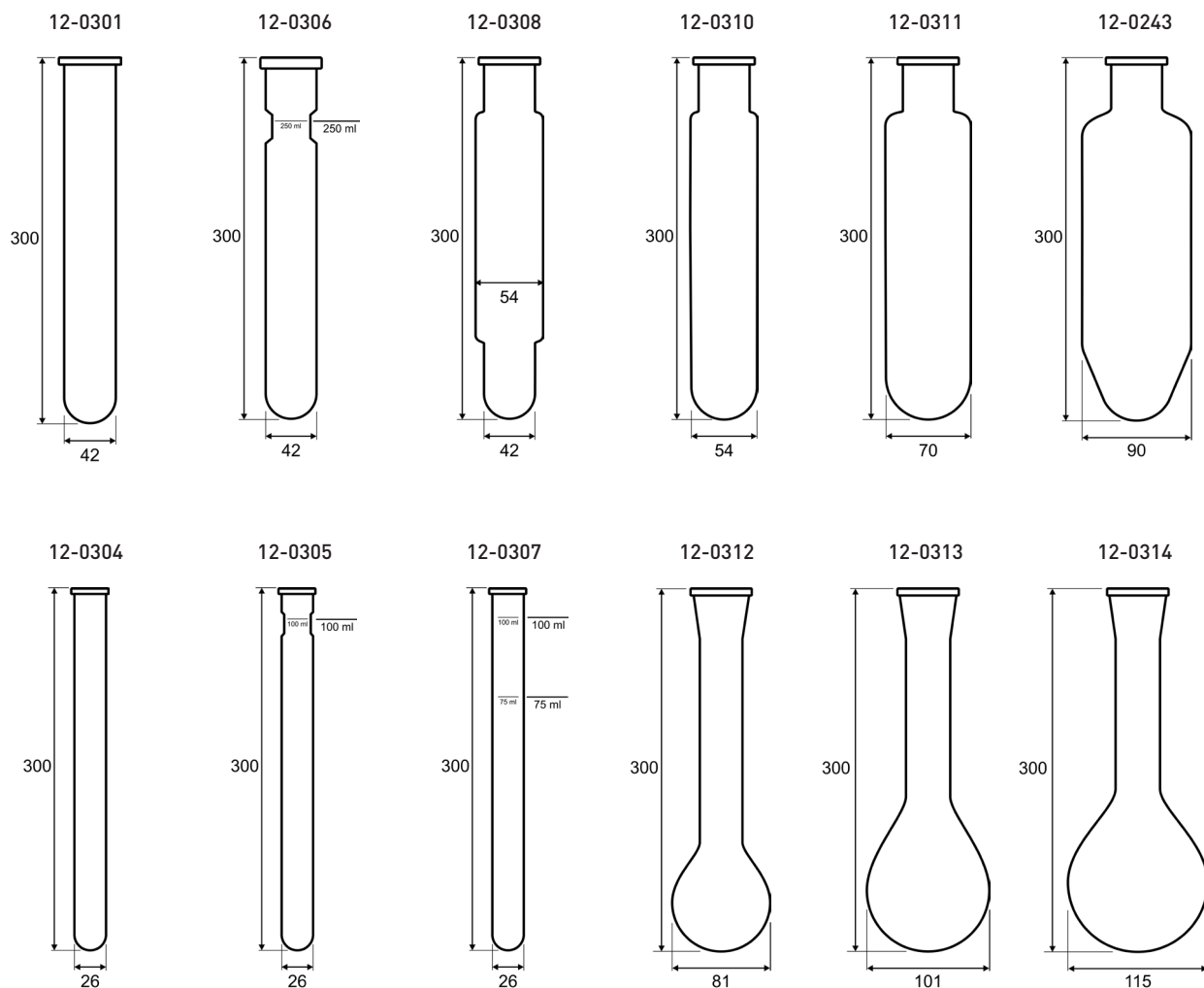
Make sure to use only original C. Gerhardt spare parts in order to obtain the best possible results. These parts have been tested thoroughly for the operation with VAPODEST in the C. Gerhardt application lab.

### KJELDAHL-DIGESTION TUBES AND KJELDAHL-FLASKS

Depending on sample type and sample quantity VAPODEST can use a lot of Kjeldahl-digestion tubes as well as Kjeldahl-flasks. All tubes are made of high standard Duran® material.

Order No.	Type	Description
12-0301	KTG	KJELDATHERM-digestion tube, macro 250/300 ml - 10 pcs
12-0306	KTG/E	KJELDATHERM-digestion tube, macro 250/300 ml, with constriction + calibrated at 250 ml
12-0308	BS-400	KJELDATHERM-digestion tube, 400 ml, diminished
12-0310	KDD400	Jumbo-digestion tube 400 ml - 4 pcs
12-0311	KDD800	Jumbo-digestion tube 800 ml - 4 pcs
12-0243	KDD1200 <sup>1)</sup>	Jumbo-digestion tube 1.200 ml
12-0304	KMT <sup>1)</sup>	KJELDATHERM-digestion glas, micro 100 ml - 10 pcs
12-0305	KMT/E <sup>1)</sup>	KJELDATHERM-digestion glas, micro 100 ml with constriction + calibrated at 100 ml
12-0307	KMT <sup>1)</sup>	KJELDATHERM-Glas, mikro 100 ml, calibrated at 100 ml + 75 ml
12-0312	KD250 <sup>1)</sup>	Kjeldahl-flask 250 ml, with enlarged neck
12-0313	KD500 <sup>1)</sup>	Kjeldahl-flask 500 ml, with enlarged neck, 4 pcs
12-0314	KD750 <sup>1)</sup>	Kjeldahl-flask 750 ml, with enlarged neck, 4 pcs

1) VAPODEST 50s carousel only possible for single determination with adapter



pH-combined electrode



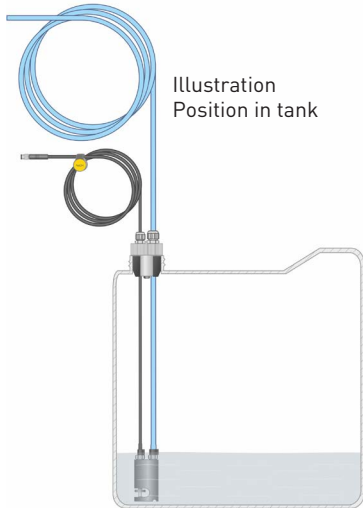
Order No.	Type	Description
12-0555	ET-KCL	pH-combined electrode KCL, require regularly filling with KCL
12-0355	ET-GEL	pH-combined electrode gel electrolyte, maintenance free

KCL and Buffer solution



Order No.	Type	Description
1000178		Electrolyte solution KCL
1000176		Buffer solution pH 4
1000177		Buffer solution pH 7

Tank level control



Order No.	Type	Description
1009310	NIV50	Universal level control set for 3 chemical tanks, 1 sample waste tank and and 1 titration tank, consisting of: - 2 x Universal level control for chemicals , no. 1005098 - 1 x Universal level control for H <sub>3</sub> BO <sub>3</sub> , no. 1005276 - 1 x Universal level control for sample waste, no. 1005721 - 1 x Storage tank 5 L for titration acid, incl. level control



Storage tanks



Order No.	Type	Description
1005849	KAN10	Tank made of HDPE, 10 L
1005850	KAN20	Tank made of HDPE, 20 L

**Anschlussstopfen Viton**



Bestellnr.	Typ	Beschreibung
12-0477		Connection stopper viton, suitable for distribution heads with connection pipe Ø 32,7 mm e.g: PP-distribution head, no.: 1005828
12-0351		Connection stopper viton, suitable for distribution heads with connection pipe Ø 32,7 mm e.g: - distribution head glass, no.: 12-0587 and - PP-distribution head, no.: 1003795

**Connection stopper, Micro**



Order No.	Type	Description
12-0352		Connection stopper VK, Isoversinic micro, special edition for the use of micro digestion tubes 100 ml

**Upgrade kit Büchi**



Order No.	Type	Description
12-0568		Adapter Set for Büchi, suitable for all distribution heads VAP200-500c, complete with: 1 x Viton-connection stopper, no. 12-0567 suitable for distribution heads with connection pipe Ø 31 mm 1 x Viton-connection stopper, no. 12-0566 suitable for distribution heads with connection pipe Ø 33 mm 1 x Viton-connection stopper, no. 12-0351 1 x Adapter PP-nature

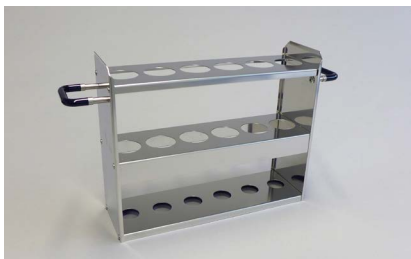
**PP Distribution head**

Order No.	Type	Description
1005828		PP Distribution head, New version as from 2012
1003795		PP-Distribution head, Version before 2012
1005063		PP-Distribution head upgrade kit, complete with: Connection stopper viton, holder, fastening screws



**Insert racks for digestion tubes**

Insert racks made of stainless steel, best for collecting the single digestion tubes, e.g. for direct distillation.



Order No.	Type	Description
12-0269	EG625	Insert rack 6-place for tubes 250 ml
12-0273	EG125	Insert rack 12-place for tubes 250 ml
12-0271	EG440	Insert rack 4-place for tubes 400 ml
12-0272	EG480	Insert rack 4-place for tubes 800 ml
12-0277	EG12-100	Insert rack 12-place for tubes 100 ml

Please see the product data sheet KJELDATHERM for more insert racks and variants.

**Distillation condenser glass**

Order No.	Type	Description
1000059	DKPP	Distillation condenser glass with short outlet pipe, for PP-distribution head 1003795 with connecting piece for ventilation valve
1000058	DK8	Distillation condenser glass with long outlet pipe, for glass distribution head 1004455 with connecting piece for ventilation valve
1000036		Ventilation valve for distillation condenser



**GL-Screw caps + seals**



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

**RECIRCULATING COOLER FL**



Order No.	Type	Description
10-0045	FL1201	Recirculating cooler 230 V / 50 Hz, 1200 W, for economical and environmentally friendly cooling water supply of VAPODEST
10-0047	FL1201	Identical to 10-0045, but in version 115 V / 60 Hz

### Guide cage Carousel



Order No.	Type	Description
1001797		Sample tube guide cage compl. for 250 ml tubes
1001804		Sample tube guide cage compl. for 400 ml tubes
1001807		Sample tube guide cage compl. for 800 ml tubes

### Carousel Upgrade Kits

For the use of different glass tubes C. Gerhardt offers upgrade kits with suitable carousel inserts and sample tube guide cages.



Order No.	Type	Description
12-0231	KIT800	Upgrade Kit for carousel 12x800 for tubes 800 ml, complete with: - Sample tube guide cage, 800 ml - carousel 12-place, PP-nature Ø 415 mm
12-0230	KIT400	Upgrade Kit Carousel 16x400, for tubes 400 ml and BS 400 ml, complete with: - Sample tube guide cage 400 - carousel 16-place, PP-nature Ø 415 mm
12-0229	KIT250	Upgrade Kit Carousel 20x250 for tubes 250/300 ml, complete with: - Sample tube guide cage 250 - carousel 20-place, PP-nature Ø 415 mm

### Tubes / Cable

Order No.	Type	Description
1000394		Water inlet tube 10/17, 2 m long, 90bar, 3/8 x 1/2" + 3/8 x 3/4"
1000047*		PVC-tubing, 8 x 12 mm
1000500*		PVC-tubing 4 x 7 mm
1000499*		Verpren-tubing 8 x 12 mm, Ø außen 12 mm
1000567		PVC-pipe 400 mm long, 10,2 x 1,4 mm
1000566		PVC-pipe 400 mm long, 6 x 1 mm
10-0058		Mains cable, 3 m
1004365		USB-cable, 2 m
10-0193		Data cable DK45, RS232, connection adapter PC 5 m

\*length needed when order

## 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

Order no	Type	Description
99-0202	ABI-VAP	Installation and Instruction VAPODEST - Installation and connection of the unit - functional check - operating instructions
99-0211	GQF-VAP	Equipment Qualification (IQ/OQ) VAPODEST - Installation of the unit and instruction - Installation <b>Q</b> ualification <b>IQ</b> and <b>O</b> perational <b>Q</b> ualification <b>OQ</b> , Guidance for <b>P</b> erformance <b>Q</b> ualification <b>PQ</b> - Training of laboratory personnel with certificate - Individual training certificates, if requested

### 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.



## APPLICATION SERVICE

The following listed applications are examples from our comprehensive application data base. Please contact your local C. Gerhardt representative or write to [application@gerhardt.de](mailto:application@gerhardt.de) to ask for one of the listed application data sheets or to ask for an application which is not yet listed.

### ANALYSIS OF FEED- AND FOODSTUFFS



Selection	Description
<input type="checkbox"/>	Non Protein content in Meat
<input type="checkbox"/>	Nitrogen in bread and rolls
<input type="checkbox"/>	Total Nitrogen in Raw Material for Breweries
<input type="checkbox"/>	Solulable Nitrogen Content Wort
<input type="checkbox"/>	Raw Protein Determination in Eggs
<input type="checkbox"/>	Total Protein in Margarine
<input type="checkbox"/>	Tomato puree and Ketchup
<input type="checkbox"/>	Nitrogen in Milk and Dairy Products
<input type="checkbox"/>	Nitrogen in Cream
<input type="checkbox"/>	Protein in Milk Powder
<input type="checkbox"/>	Non-Protein in Milk and Dairy Products
<input type="checkbox"/>	Raw Protein in Meat and Meat Products
<input type="checkbox"/>	Raw Protein in Grain and Grain Products
<input type="checkbox"/>	Raw Protein in Beer and Wort acc. to Lochner
<input type="checkbox"/>	Total Nitrogen in Sugar at very low N-content
<input type="checkbox"/>	Nitrogen in Starch
<input type="checkbox"/>	Nitrogen in Fish and Fish Products
<input type="checkbox"/>	Nitrogen in Chocolate
<input type="checkbox"/>	Total Protein in Fresh Yeast
<input type="checkbox"/>	Raw Protein in Feed
<input type="checkbox"/>	Volatile Acids in Wine
<input type="checkbox"/>	Sulphur Dioxide in Food
<input type="checkbox"/>	Sorbic acid in wine
<input type="checkbox"/>	TVBN in Fish and Fish Products
<input type="checkbox"/>	Vicinal Diketones in Beer
<input type="checkbox"/>	Alcohol in Beverages and Intermediates

### ENVIRONMENTAL ANALYTICS / OTHER



Selection	Description
<input type="checkbox"/>	Coagulated Nitrogen
<input type="checkbox"/>	Nitrogen Determination in Fertilizers with Nitrate
<input type="checkbox"/>	Fertilizers without Nitrate Content
<input type="checkbox"/>	Ammonium Determination in Fertilizers
<input type="checkbox"/>	Water soluble Ammonium nitrogen in Fertilizers
<input type="checkbox"/>	Determination of Nitrat and Ammonium Nitrogen fert
<input type="checkbox"/>	Total Nitrogen in Xanthan
<input type="checkbox"/>	Total Nitrogen in Water
<input type="checkbox"/>	Total Nitrogen in Soil
<input type="checkbox"/>	Total Nitrogen in Grass and Plant Material
<input type="checkbox"/>	Total Nitrogen in Coal
<input type="checkbox"/>	Phenol Index in Soils and Water
<input type="checkbox"/>	Ammonium in Solid Samples
<input type="checkbox"/>	Ammonium in Aqueous Samples
<input type="checkbox"/>	Nitrate in Aqueous Samples and Eluates
<input type="checkbox"/>	Total Cyanide in Water, Soil and Sludge
<input type="checkbox"/>	Volatile Organic Acids in Sludge
<input type="checkbox"/>	Total Formaldehyde in Aminoplast Adhesive

## TABLE OF CONFIGURATION

Please arrange the required system

### DISTILLATION 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	



