

VAPODEST 50s – Water steam distillation systems

# COMPLETELY AUTOMATED KJELDAHL DISTILLATION



## PRECISE

High-precision titration unit with micro dosing pump

## AUTOMATIC

Autosampler for large volumes of samples

## FLEXIBLE

Specific program libraries for different samples can be defined

## TRANSPARENT

Powerful control and data processing software



Automatic steam distillation with

## VAPODEST 50s

The fully automated VAPODEST 50s distillation system with integrated titration unit and control via VAPODEST-Manager combines precision and convenience. The design provides the ideal conditions for distillation.

All program operations can be monitored and tracked on the display. The system is controlled, data is processed and methods are created with the user-friendly VAPODEST-Manager control software. This also enables comprehensive and easy integration in a LIMS system.



### ROUTINE ANALYSES MADE EASY

VAPODEST 50s helps you in your daily routine analyses. Any number of programs can be defined in advance and then processed directly for a wide range of sample types. After the analysis is complete, all the results are calculated and displayed immediately and can be printed out, if desired. The printout of the results can be set out individually as an individual print or a print run.

All analysis data can be saved in a database for monitoring and documentation purposes and printed out. The data can be imported and exported for further processing in a spreadsheet program.

### PERFECT ANALYSES

All systems have automatic steam generation with an adjustable steam output of 30 to 100% so they can be adjusted to all common distillation processes. Standby mode saves energy during breaks in operation and the analysis can be started instantly at any time. Distillation times can be programmed infinitely variably. Kjeldahl distillation processes are completed in 2 to 4 minutes.

### TITRATION – PRECISION WORK

The integrated titration unit developed by C. Gerhardt evaluates the analysis by means of potentiometric, automatic end point detection using a pH combined electrode. The titration solution is metered by a high-precision, almost wear-free micro dosing pump made of ceramic that can be calibrated.

- ✦ Minimal flow rate deviation
- ✦ Virtually unlimited service life
- ✦ Flow rate can be calibrated
- ✦ Online titration for quicker analyses
- ✦ pH measurement for maximum accuracy and transparency

## OPERATION VIA PC – VAPODEST-MANAGER

VAPODEST 50s is operated completely via PC using the VAPODEST-Manager control software. The software supports modern laboratory management with extensive documentation and control functions.

### THE MAIN FUNCTIONS

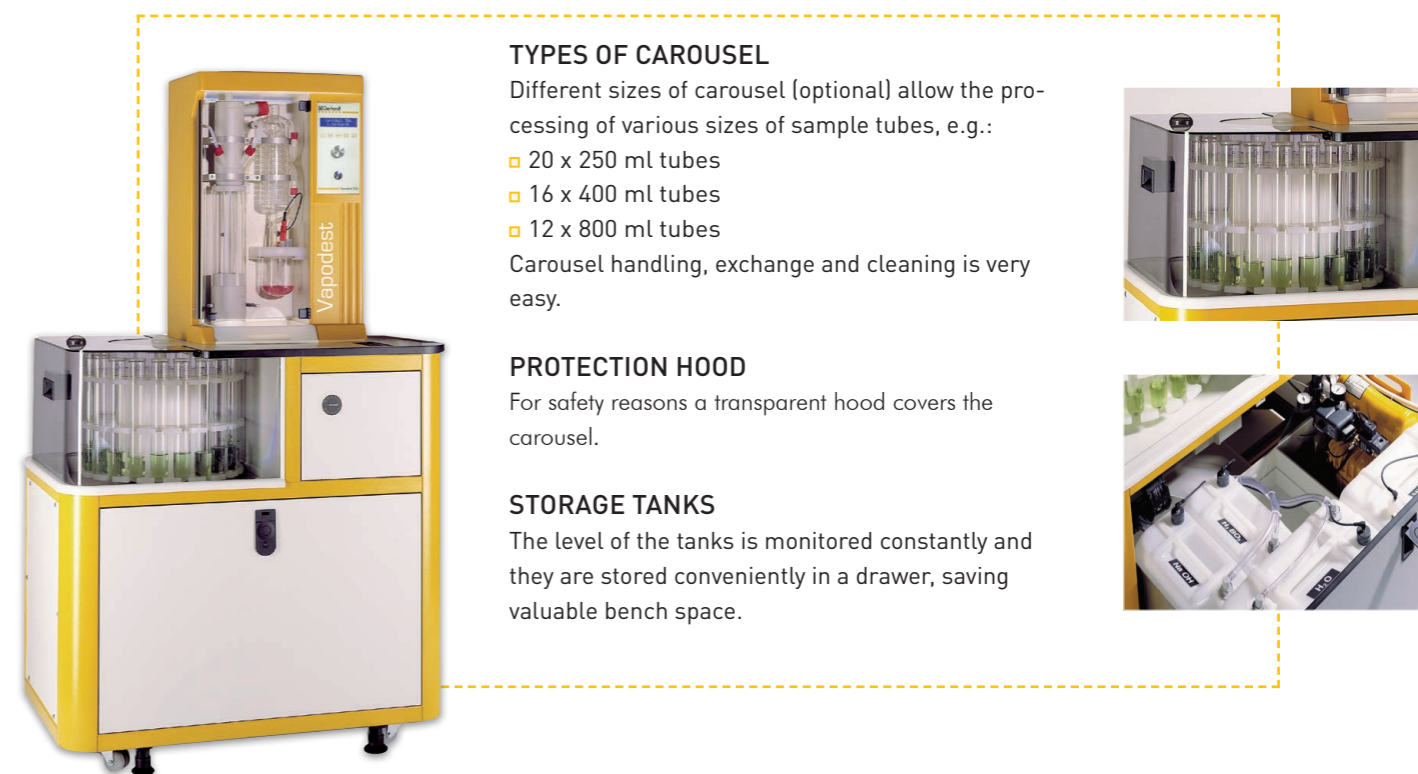
- ✦ **System settings**  
Basic settings, language selection, settings for: pump calibration, pH calibration, titration, device statistics and much more.
- ✦ **Defining methods**  
All relevant parameters for controlling the distillation/titration are defined, such as method name, results calculation, plausibility criteria etc.
- ✦ **Sample input**  
Specification of the series and input of the sample data such as sample name, weight, types etc. A series consists of up to 20 samples and can involve different sample types, blank samples and standards. The sample weights can be imported directly from a set of scales.
- ✦ **Method execution**  
All analysis steps are monitored continuously. After the analysis is complete, all the results are displayed immediately.
- ✦ **Results tables**  
Display of the data results, management of the results, information about performing analyses and users, import and export of results and much more.



## VAPODEST 50s carousel

### DISTILLATION SYSTEM WITH AUTOSAMPLER

This model is Gerhardt's solution for the most sophisticated lab requirements: the distillation system with automated sample feed for fully automated analysis. The sample tubes are taken from the carousel and fed directly into the VAPODEST 50s for further processing. This robust system, based on a pneumatic drive ensures very reliable running. Furthermore, all functions are checked continuously by an error diagnosis system.



### TYPES OF CAROUSEL

Different sizes of carousel (optional) allow the processing of various sizes of sample tubes, e.g.:

- ▣ 20 x 250 ml tubes
- ▣ 16 x 400 ml tubes
- ▣ 12 x 800 ml tubes

Carousel handling, exchange and cleaning is very easy.

### PROTECTION HOOD

For safety reasons a transparent hood covers the carousel.

### STORAGE TANKS

The level of the tanks is monitored constantly and they are stored conveniently in a drawer, saving valuable bench space.



# System overview

Standard configuration	VAP 50s	VAP 50s 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	●	●
Automatic steam generator	●	●
Variable steam power	●	●
Automatic suction of sample waste	●	●
Automatic suction of the receiver	●	●
Main programs	●	●
Control via PC / VAPODEST-Manager	●	●
Selection of language	●	●
Connection for chemical tank level control	●	●
Stand-by-Function	●	●
Optical and acoustical error messages	●	●
Protection door with safety switch	●	●
Digestion tubes 250 ml, 400 ml and 800 ml can be used	●	●
Kjeldahl-flasks 250 ml, 500 ml und 750 ml can be used	●	-
RS485 interface	●	●
USB-interface	●	●
Automatic titration	●	●
Micro dosing pump for titration	●	●
Connection for scales	●	●
Result print out	●	●
Autosampler (carousel)	-	●
Set of storage tanks	-	●

● = Standard configuration

Computer: Personal computer and printer are not included the delivery.  
Operating system: Windows XP®, Vista®, Windows 7®, 1 x USB-interface

Technical data	VAP 50s	VAP 50s carousel
Distillation time / sample	2 - 4 min	2 - 4 min
Recovery rate	> 99.5 %	> 99.5 %
Reproducibility	+/- 1 %	+/- 1 %
Detection limit N	0.1 mg	0.1 mg
Nominal voltage	230 V AC <sup>1)</sup>	230 V AC <sup>1)</sup>
Frequency	50 Hz	50 Hz
Nominal wattage	1600 W	1830 W
Weight	37 kg	198 kg
Dimensions (W x D x H)	440 x 340 x 690 mm	1010 <sup>2)</sup> x 670 x 1655 mm

1) Special voltages on request 2) 1290 mm with board attached on the side for monitor or printer

## Order information

### VAPODEST 50s

Order No.	Type	Description
12-0040	VAP 50s	VAPODEST 50s, Distillation system complete incl. VAPODEST Manager, data cable for PC-connection, digestion tube, buffer solution, KCL-solution, tubing set, Mains cable, pH-electrode

### VAPODEST 50s carousel

Same as VAPODEST 50s plus autosampler and storage tanks

Order No.	Type	Description
12-0050	VAP 50s C	VAPODEST 50s Carousel, complete with carousel for 20 x 250/300 ml tubes (max. capacity 300 ml)
12-0051	VAP 50s C	VAPODEST 50s Carousel, complete with carousel for 16 x 400 ml tubes
12-0052	VAP 50s C	VAPODEST 50s Carousel, complete with carousel for 12 x 800 ml tubes
12-0053	VAP 50s C	VAPODEST 50s Carousel, complete with carousel for 16 x BS 400 ml tubes



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Presented by: