

## Steam distilling unit

### 51008 UDK 126D

#### Applications:

- Steam distilling unit designed for the determination of ammonia, proteic Nitrogen (**Kjeldahl** or direct alkaline distillation) nitric Nitrogen (after reduction), phenols, volatile fatty acids, cyanide, sulfur dioxide, etc.; in cereals, animal feeds, foods, water, soil chemicals.
- According to AOAC-EPA-DIN-ISO.
- Fed with deionised water.
- Compatible with Tecator, Bchi and Gerhardt tubes or any tube with a high of 260-300mm and diameter from 35 to 55 mm.
- Security system to recognize when the tube is present and avoid dosification without tube.
- The additions of sodium hydroxide to the solution to be distilled, when required, are obtained by the operation of a valve and the added volume is evaluated by a graduated scale at the side of distillation tube. The steam distillation is performed in few minutes.
- Complet set: test tube,  $\Delta 42 \times 300$  mm, collecting flask, 250 ml, set of tubes, ABS tank, pincer for test tubes and inlet tube.
- Power: 2000 W.
- Reproducibility:  $\pm 1\%$ .
- Weight: 23 kg.
- Dimensions: 318x740x365 mm.
- Power Supply: 220-240 V/50-60Hz.

### 51019 Semi-automatic steam distilling unit UDK.132

- Useful for determinations of ammonia nitrogen, proteic nitrogen (**Kjeldahl** or direct alkaline distillation), nitric nitrogen (after reduction) alcohol content, phenols, volatile fatty acids, cyanides, sulphur dioxide etc, in cereals, food and feed, water, sludges, sediments and chemicals.
- Automatic in several working phases.
- Patented steam generator to be uses with deionized water, is able to produce 100 ml of distillate in only 4 minutes without any maintenance.
- An innovative system permits the use of test tubes with different heights or Kjeldahl flask up to 500 ml capacity.
- A triple safety device which warns about the lack of the test tube in position, the non closure of the front protection and the absence of the cooling water.
- Suitable for: AOAC, EPA, DIN, ISO..
  - Epoxy painted stainless steel structure.
  - 10 different memorizable programs
  - Production of 100ml of distillate in 4 min.
  - Reproducibility:  $\pm 1\%$ .
  - Recovery rate:  $>99,5\%$ .
  - Limit of detection  $> 2\text{mg}$  nitrógeno.
  - Programable operations:
    - Sample dilution: 0-200 ml.
    - NaOH Addition: 0-200 ml.
    - Distillation time: 2'00 – 30'00 or continuous.
    - Automatic removal of distillation residues.
  - Interface RS 232 for printer, PC and keyboard for recording all the data related to a performed. Work accoding to GLP.
  - Acoustic signal at the end of the distillation.
- Included with the equipment: test tube 42x300 mm, collecting flask, set of tubes for conexions, pincer for test tube.
- Power: 2100 W.
- Cooling water: 8 liters/min.
- Steam generator feeding water: 50 ml/min (distilled or deionized)
- Weight: 28Kg
- Dimensions: 340x440x720mm
- Voltage: 220V-240V/50 Hz.



## 51007 Automatic steam distilling unit UDK.142

- Useful for determinations of ammonia nitrogen, proteic nitrogen (**Kjeldahl** or direct alkaline distillation), nitric nitrogen (after reduction) alcohol content, phenols, volatile fatty acids, Cyanides, sulphur dioxide etc, in cereals, food and feed, water, sludges, sediments and chemicals.
- Automatic in several working phases.
- Patented steam generator to be uses with deionized water, is able to produce 100 ml of distillate in only 4 minutes without any maintenance.
- An innovative system permits the use of teh test tubes with different heights or Kjeldahl flask up to 500 ml capacity.
- A triple safety device which warns about the lack of the test tube in position, the non closure of the front protection and the absence of the cooling water.
- Suitable for: AOAC, EPA, DIN, ISO..

### Technical Specifications:

- Epoxy painted stainless steel structure.
- 10 different memorizable programs.
- Production of 100ml of distillate in 4 min.
- Reproducibility:  $\pm 1\%$ .
- Recovery rate:  $>99,5\%$ .
- Limit of detection  $> 2\text{mg}$  nitrógeno.
- Programable operations:
  - Sample dilution: 0-200ml
  - NaOH Addition: 0-200ml
  - Distillation time: 2'00 – 30'00 or contiuous
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- Interface RS 232 for printer, PC and keyboard for recording all the data related to a performed.
- Work accoding to GLP.
- Acustic signal at the end of the distillation.
- Included with the equipment: test tube 42x300 mm, Collecting flask, set of tubes for conexions, pincer for test tube.
- Power: 2100 W
- Cooling water: 8 liters/min.
- Steam generator feeding water: 50 ml/min (distilled or deionized).
- Weight: 28 Kg.
- Dimensions: 340x440x720 mm.
- Voltage: 220V-240V/50 Hz.



51007

**GLP** Good Laboratory Practices  
**AOAC DIN EPA ISO**

### Accessories:

- 51102 Test tubes 42x300 mm
- 51183 Test tube for 60x60 determination
- 51187 Adapter for test 26 mm
- 51185 Adapter for 48x266 mm
- 51188 Printer
- 51180 Titrador VELP "TITROLINE EASY"
  - Connection cable for titrators: Mettler, Metrohm, Schott, Crison,.....

Consult



## Digesters with temperature ramps

- For Standard digestions and **Kjeldahl**.
- Instruments for wet digestions of liquid or solid samples projected according to GLP. (Good Laboratory Practices).
- Manufactured according to: AOAC, EPA, DIN, ISO and CE.
- Allow works in reproducible conditions, with a full safety.
- Automatic calibration of temperature.
- Microprocessor controlled functions.
- 20 different memorizable programs.
- 4 ramps in each programs with the corresponding durations.
- Possibility of sending the data related to a performed test to a printer or to a PC for their storage.
- LCD Display, spanish software and RS232 interface.
- The analysed sample is up to: 5gr (solid) or 15ml for liquids samples.
- Selectable temperature: programable up to 450°C (Option °F) with 4 ramps.
- Stability:  $\pm 0,5^{\circ}\text{C}$ .
- Precision and homogeneity:  $\pm 0,5^{\circ}\text{C}$ .
- Speed of heating from 20 to 420°C: 30 min.
- Selectable temperatures up to 999 min with possibility of continuous working.
- Acoustic signal at the end of the distillation.
- Sucking and neutralizing systems for acid gases and corrosive. (optional).
- Suggested the use of sucking (recirculating water pump JP) and neutralizing (scrubber SM) systems in digestions evolving corrosive fumes. (See Accessories).



### 51005 6 places digester DK 6

- Capacity 6 tubes up to diameter 42 mm.
- Power: 1100 W.
- Weight: 10 Kg.
- Dimensions: 293x339x152 mm.
- Voltage: 220-240V/50-60 Hz.

### 51006 20 places digester DK 20

- Capacity 20 tubes up to diameter 42 mm.
- Power: 2100 W.
- Weight: 24 Kg.
- Dimensions: 393x446x152 mm.
- Voltage: 220-240V/50-60 Hz.



## Accessories:

- 51201 Glassware handle with heat shields for 6 tubes
- 51202 Glassware handle with heat shields for 20 tubes
- 51102 Test tube 42x300 mm
- 51104 Suction cup for DK6
- 51105 Suction cup for DK6
- 51114 Support system for DK6
- 51115 Support system for DK6
- 51106 Stainless steel stand for DK6
- 51103 Stainless steel stand for DK6
- 51188 Printer
- 11140 Test tube 29x22x700 COD
- 11141 Air refrigerators for COD
- 11145 Antisplash bells for air
- 11143 Glassware 600ml for 6



## Suction and neutralization systems

### 51199 SCRUBBER SMS

- Designed for the neutralization of toxic, noxious and corrosive fumes.
- Two stages system:
  - Condensation.
  - Neutralization.
- Applications: from the Kjeldahl method, to the environment protection against gases emissions and acid fumes by means of its neutralization.
- Maximum efficiency if it is connected to a recirculating water pump JP.
- Dimensions: 190x300x500 mm.
- Weight: 3,5 kg.

## Accessories:

- 51197 P/10 refill of activated carbon
- 51196 Activated carbon

### 51198 Recirculating pump JP

- Recirculating water pump
- When coupled to a Scrubber SMS, it allows a very effective removal of fumes evolved during acid mineralization.
- Composed by a structure made of ABS, extremely resistant to chemical corrosion.
- Indicator of level for the control of water and stopcock for the drainage.
- Maximum air flow: 35 Liters/min.
- Air flow regulation range from 0 to 35 L/min.
- Residual pressure: 35mm/Hg.
- Power: 160 W.
- Weight: 8,5 Kg.
- Dimensions: 250x370x400 mm.
- Voltage: 220-240V/50 Hz.



## Digesters for 48 mm and 26 mm (MICRO) tubes

- Digesters with characteristics indicated in DK6 and DK20 models, designed to work with 48 mm tubes (DK 6/48) or 26 mm tubes (Micro).

### 51306 6 places digester diameter 48 mm DK6/48

- Capacity: 6 tubes with diameter 48 mm.
- Power 1100 W.
- Weight: 8 Kg.
- Dimensions: 293x339x152 mm.
- Voltage: 220-240V/50-60 Hz.

### 51308 20 places digester diameter 26 mm DK20/26 MICRO

- Capacity: 20 tubes with diameter 26 mm.
- Power: 1100 W.
- Weight: 10 Kg.
- Dimensions: 293x339x152 mm.
- Voltage: 220-240V/50-60 Hz.

### 51342 42 places digester diameter 26 mm DK42/26 MICRO

- Capacity: 42 tubes with diameter 26 mm.
- Power 2100 W.
- Weight: 24 Kg.
- Dimensions: 393x446x152 mm.
- Voltage: 220-240V/50-60 Hz.

#### Accessories:

- 51351 Glassware handle with heat shield for DK6/48
- 51352 Glassware handle with heat shield for DK20/26
- 51353 Glassware handle with heat shield for DK42/26
- 51358 Test tube 48
- 51356 Test tube 26mm Ø
- 51366 Suction cup for DK6/48
- 51367 Suction cup for DK20/26
- 51368 Suction cup for DK42/26
- 51188 Printer
- 51114 Support system for DK6/48
- 51115 Support system for DK20/26



## Catalyst tablets

- Pre-dosed tablets to speed up the analytical procedure.

Code	Tablets	Composition	Box/Ud
51660	Antifoams S:	0,97g Na <sub>2</sub> SO <sub>4</sub> - 0,03 g silicone	1.000
51602	Kjeltabs MT:	3,5 g K <sub>2</sub> SO <sub>4</sub> - 0,175 g HgO	1.000
51609	Kjeltabs ST:	3,5 g K <sub>2</sub> SO <sub>4</sub> - 0,0035 g Se	1.000
51613	Kjeltabs W:	97,5 part Na <sub>2</sub> SO <sub>4</sub> -1,5 part Cu SO <sub>4</sub> 5H <sub>2</sub> O – 1 parte Se, 5g	1.000
51621	Kjeltabs TCT:	3,5g K <sub>2</sub> SO <sub>4</sub> – 0,105 g Cu SO <sub>4</sub> X 5H <sub>2</sub> O 0,105 g TiO <sub>2</sub>	1.000
51650	Kjeltabs CM:	3,5g K <sub>2</sub> SO <sub>4</sub> – 0,1g CuSO <sub>4</sub> – 5H <sub>2</sub> O (Missouri)	1.000



## Weighing boats

- Weighing boats made by Nitrogen-free parchment paper. They can be mineralized with the sample during the Kjeldahl Nitrogen determination, without impact on the final result.

Code	Box/Ud
51860 Weighing boats 58x10x10 mm	100
51861 Weighing boats 70x23x15 mm	100



## Extraction thimbles

- Filter for solvent extraction. produced with high quality cotton cellulose fiber. Thickness 1 mm.

18448 Extraction thimbles 33x80 mm Box of 25 u.

## Solvent extraction apparatus for quantitative separations of fats by solvents

- According to AOAC, TAPPI, UNI, EPA, ASTM, APHA, AWWA, WEF.
- Sector of application include the analysis of food, feed, detergents, rubber and plastic formulated, pharmaceutical products, soils and others, for their content of soluble components like fats, tensides, plastifiers and pesticides.
- Allows the quantitative separation of a substance or a group of substances from a mixture of solids or semisolids.
- The extraction is performed, according to the Randall technique, in two phases with a final recovery of the used solvent.
- The equipment is controlled by a programmable microprocessor allowing to choose among 29 programs; 2 different displays will constantly show actual temperature and residual working time for the selected program.
- The extractions are performed under high safety conditions because the equipment follows the norms CEI EN 60529 and IP 55 protection degree.

### Specifications:

- Epoxy painted stainless structure studied and tested in order to give to the instrument an excellent resistance to the attack of chemical and mechanical agents and to corrosion in general.
- Extraction thimbles: pure cellulose 33x80 mm.
- 2 Displays showing: working temperature and settable parameters.
- Safety devices: 2 independent microprocessor controlled electronic circuits with Pt 100 probe, protection according to IP 55 standard.
- Signal of absence or insufficiency of the cooling water.
- Reproducibility:  $\pm 1\%$ .
- Sample amount: from 0,5 to 15 gr.
- Solvent volume: from 30 to 100 ml.
- Solvent recovery rate: from 50 to 70%.

### Settable parameters and values for each program:

- Work temperature : from 100 to 260° C.
- Immersion time : from 0-999 minutes.
- Washing time : from 0-999 minutes.
- Recovery time : from 0-999 minutes.
- Complete device: Extraction thimbles, extraction thimbles holder, extraction cups, connections and seals.
- Power: 400 W (SER 148/3) 900 W (SER 148/6).
- Weight: 30 kg.
- Dimensions: 480x390x 620 mm (SER 148/3) 700x390x620 mm (SER 148/6).
- Power supply: 220-240V/ 50-60 Hz.



Code	Equipment	places n°
18483	SER 148/3	3
18486	SER 148/6	6

### Accessories:

- |       |                         |       |                                  |
|-------|-------------------------|-------|----------------------------------|
| 18445 | Handling device of cups | 18449 | Thimbles stand (6)               |
| 18446 | Weighing cup            | 51188 | Printer                          |
| 18447 | Pincer for weighing     | 18448 | Extraction thimbles (pack of 25) |

## Extractor for raw fiber determination

### Applications:

- Raw fiber (Weende, Wjstrom).
- Acid and neutral detergent fiber (Van Soest).
- Lignin, cellulose, hemicellulose.

### According to AOAC- ISO-AACC-AOCS

### Characteristics:

- Epoxy painted steel structure tested in order to give to the instrument an excellent resistance to the attack from chemical and mechanical agents and to corrosion in general.
- Cold and hot extractions.
- Air pump for sample mixing and stirring.
- Peristaltic pump for reagent discharge.
- Timer with acoustic alarm.
- Electronic variable temperature setting.
- All the extraction phases operated by rotating valves.
- Separated outlets for reagents and cooling water.
- Samples can be individually processed.
- Signaling absence or insufficiency of the cooling water.

### Specifications:

- Sample size: 0,5-3 gr.
- Reproducibility:  $\pm 1\%$ .
- Power: 800 W (FIWE 3) 1200 W (FIWE 6).
- Weight: 35 kg (FIWE 3) 46 kg (FIWE 6)
- Dimensions: 530x390x620 mm (Five 3)  
760x390x620 mm (Five 6).
- Power supply: 220-240V/ 50-60 Hz.
- Included with the equipment: Reagent bottles, 2 places hot plate type RC2, holder for crucibles, crucibles with filtering plate, pincer for crucibles, conexions.



Code	Equipment	Places n°
18423	FIWE 3	3
18426	FIWE 6	6



## Cold extractor COEX

### According to AOAC-AACC

- Samples to be submitted to raw fiber determination should have a fat content lower than that 1%. If the fat content is higher than 1% a preliminary extraction of ground material using acetone, hexane or petroleum ether is to be performed.
- The COEX equipment allows a rapid defatting of samples in the same glass crucibles used with FIWE 3 and FIWE 6 for subsequent crude fiber determination.
- Dimensions: 730x 280x 380 mm.
- Voltage: 220-240 V/50 Hz

Code	Equipment	Places n°
18454	COEX	6

## Filtration equipment for the determination of dietary fiber

Dietary fiber includes cellulose, hemicellulose, lignin, pectins, gums and waxes. For its determination by thermostable enzymes, the American Association of Official Analytical Chemists proposes method 985.29 (AOAC Official Methods of Analysis).

CSF6 equipment allows realize the final steps of filtration and washing foreseen by the enzymatic method, with a visible reduction of the required times.

*Suitable for: AOAC*

- Epoxy painted stainless steel structure with an excellent resistance to the attack of chemical and mechanical agents and corrosion in general.
- Peristaltic pump with high suction capacity.
- Separate collection of residues.
- Shortening of filtration time: 20 minutes (6 samples), whilst the AOAC method requires 3 hours.
- 6 glass crucibles included.

### 18421 Filtration equipment CSF6

### 18040 Glass crucible



## GDE unit

GDE units allows to obtain a regular stirring of the sample and a excellent thermostability accuracy, during the sensitive Enzymatic Digestion phase. 220-240V-50/60 Hz

### 18420 GDE unit

- Immersion thermostat.
- Multiposition shaker 6 places.
- Tank for thermostating with lid.

