



Thermostatic baths

WBD Series

Advantages

- ◆ Programming by temperature / time segments.
- ◆ Up to 10 editable programs and customizable names.
- ◆ Possibility to select between Celsius or Fahrenheit degrees.
- ◆ Visual and acoustic alarms: probe failure, non-heating, temperature outside the chosen range (both over and under).
- ◆ 3.5" color touch screen.
- ◆ Graph visualization: programmed objectives and real curve.
- ◆ Visualization of program phases.

Features

- ◆ Digital temperature regulation and reading by microprocessor with P.I.D. and PT100 temperature probe.
- ◆ Timer: start and stop cycle programming (minute/hour/day/month/year).
- ◆ Programmable temperature maintenance time (unlimited).
- ◆ Safety under regulation EN 61010-1.
- ◆ Safety thermostat with manual rearms according to DIN 12877 class 2.
- ◆ Inner tank made of AISI-304 stainless steel. External case made of AISI- 304
- ◆ Stainless steel heating elements inside the tank.
- ◆ Incorporated drainage.
- ◆ Includes heater protecting grid.
- ◆ Maximum filling: 80% of total capacity. Minimum filling: 50% of total capacity.



WBD-12

Medio Medium Milieu	Rango temperatura Temperature range Rang de température	Estabilidad Stability Stabilité	Homogeneidad Homogeneity Homogénéité	Resolución Resolution Résolution
AGUA WATER EAU	Amb. +5 - 99 °C	± 0,1 °C	± 0,2 °C	0,1 °C
ACEITE OIL HUILE	100 - 200 °C	± 0,5 °C	± 1 °C	0,1 °C

Referencia Reference Référence	Capacidad total Total capacity Capacité totale l	EXTERIOR L x D x H mm	INTERIOR l x d x h mm	Potencia Power Puissance W	Peso Weight Poids Kg	Tensión* Voltage Voltage V	Frecuencia Frequency Fréquence Hz
WBD-5	5	345 x 355 x 215	290 x 150 x 120	1000	5	230	50/60
WBD-12	12	345 x 540 x 215	290 x 320 x 120	1500	7,5	230	50/60
WBD-20	20	345 x 715 x 215	300 x 505 x 120	2000	10	230	50/60
WBD-40	40	665 x 715 x 215	625 x 505 x 120	3000	15	230	50/60



VACUUM DRYING OVEN

Features

- Vacuum drying.
- Temperature range from +35°C to 250°C.
- Heating by electric elements mounted in an independent chamber for optimum temperature homogeneity and stability, vacuum by a double stage oil sealed rotary vane pump integrated with a 0.1 µm filter and a 2l capacity decanter.
- Temperature and time controlled by digital PID microprocessor, with 10 editable programs of customizable name, programmable with up to 10 temperature/time segments.
- Timer start and Timer stop adjustable by date, hour and minute.
- Intuitive alphanumeric touchscreen user interface that displays time, temperature and cycles in graphs, has audiovisual alarms and advanced cycle and timer programming.
- Ethernet connection that allows the use of the online RAYPANet platform to view and export cycles, generate reports and simultaneously manage different equipment.
- Temperature probe Pt100A class.
- Standard rear adjustable aeration device plus lateral in DAF-43/78/135 or superior in DAF-250/425/635 for moisture evacuation and external probe access.
- External metallic frame with epoxy resin coating.
- Safety double glass against implosions.
- Inner chamber and inner side door made of stainless steel AISI-304.
- Double insulated walls and door with low conductivity glass wool.
- Silicone sealing gasket.



Safety

- Safety double glass against implosions.
- Audiovisual security alarms: end of cycle, probe failure, heating error, overheating and temperature out of range.
- Adjustable class 2 safety hydraulic thermostat.
- Stainless steel interior and corrosion-resistant, easy to clean exterior that remains at safe temperature without overheating.
- Door lock protects samples from unauthorized access (optional accessory: MCLL).
- Homogeneity and temperature stability according to DIN 12880 regulation.
- Safety according to EN 61010-1 and EN 61010-2-010 regulations

Referencia Reference Référence	Capacidad Capacity Capacité l	Estabilidad Stability Stabilité °C	Homogeneidad Homogeneity Homogénéité °C	INTERIOR L x D x H mm	EXTERIOR L x D x H mm	Potencia Power Puissance W	Tensión* Voltage Voltage V	Peso Weight Poids Kg
EV-50	50	±1	±5	420 x 350 x 348	580 x 570 x 650	1500	230	82

* También disponible en 115 V de tensión / Also available with a voltage of 115 V / Également disponible avec 115 V.

RAYPANet - new online data processing platform

- All incubation and drying equipment have a Ethernet connection that allows the use of the RAYPANet online platform on a PC to view and export all the information of the cycles with graphs and all the relevant data, with the ability to export data reports.
- All cycle data can be viewed on the platform in real time or through the cycle history registry. Furthermore, all data can be exported in .csv and .pdf file formats for later consultation, study and storage.
- The platform is compatible with all web browsers and multiple equipment can be connected and controlled simultaneously.



KJELDAHL DIGESTER MBC Series

Features

- Features
- Quick and safe manipulation of samples.
- Integrated support for sample tubes enabling an easier cooling.
- Sample size:
 - Solids: 5 g (macro), 1 g (micro)
 - Liquids: 15 ml (macro), 3 ml (micro)
- Upper chassis made of aluminum alloy and Halar® coating. Bottom chassis made of stainless steel painted with epoxy resin.
- Ideal for use in combination with the



Advantages

- Programmable auto-start.
- Built-in temperature regulator, has 9 programs with 18 temperature and time segments each.

Model	MBC-6/N	MBC-12/N	MBC-20/N	MBCM-12	MBCM-24	MBCM-40
Weight	27 Kg	38 Kg	47 Kg	30 Kg	39 Kg	48 Kg
Power	1500 W	2000 W	2500 W	1500 W	2000 W	2500 W
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
stability	±0.1 °C a 50 °C	±0.1 °C a 50 °C	±0.1 °C a 50 °C	±0.1 °C a 50 °C	±0.1 °C a 50 °C	±0.1 °C a 50 °C
Homogeneity	±2 °C	±2 °C	±2 °C	±2 °C	±2 °C	±2 °C
Temperature	45 a 450 °C	45 a 450 °C	45 a 450 °C	45 a 450 °C	45 a 450 °C	45 a 450 °C

SCRUBBER

Features

- The gas produced during the digestion is extracted by the action of a vacuum pump. First, the gas undergoes a phase of condensation that acts as preliminary extractor for steams and dragged liquids, avoiding a warming or increase of the volume in later washing solution.
- The acid or alkaline steam is washed and neutralized in the next step. In this neutralization phase, most of the unwanted particles are retained by means of granules of activated coal. The used air is taken directly to an extractor or outdoors.
- Case made of stainless steel AISI 304 painted with epoxy resin. Glass: Borosilicate 3.3. Tubes: PVC (cristalflex), silicone y Teflon®. Pump: PPS, EPDM, Viton®.
- Ideal to use together with MBC Compact digestion system. Is connected by a flexible tube to the digestion fume collector.

Advantages

- Vacuum pump included, 48l/min 10mbar to 800mbar.
- Saving of refrigerating water in digestion heating blocks.
- Fumes neutralization closed system.
- Filtration and neutralization of fumes.



PROTEIN NITROGEN DISTILLER – DNP-2000 / DNP-3000

DNP Series :

Protein-Nitrogen distiller based on Kjeldahl method. Automatic, to analyse proteic nitrogen in raw material samples or processed material for food industry. Automatic titrator included. Results in total protein or N. Results complies with regulations: EN/ISO, AOAC.

Features

- Control of the system by microprocessor with LCD screen.
- Twenty user free programs.
- the system has three fixed programs:
- Ammonium sulphate test.
- Pre-heating of the system.
- Washing.
- Included automatic titrator

Performance

- Measurement range: from 0,1 to 200 mg of N.
- Nitrogen recovery: > 99,5%.
- Reproducibility: $\pm 1\%$.
- Distillation time: 4 min/100 ml.
- Cooling water consume: 1,2l/min.
- Power: 2000 W (100%).
- Programs: 20 user free.

Safety

- Closed door detection.
- Digestion tube detection.
- Over-temperature thermostat

Advantages

- Full automated.
- Readout in total protein or N
- Sample suction. 20 user programs.
- Pump calibration by end-user.
- Steam generator with water level control.
- Built in magnetic stirrer for titration.
- Open door sensor.

Programmable Parameters And Values

- Water for dilution: 0-240 ml.
- NaOH solution: 0-240 ml.
- BO3H3 solution: 0-240 ml.
- Reaction time (delay): 0-30 min.
- Distillation time: 0-30 min or indefinite.
- Steam power regulation: 30-100%.

Components Supplied with the Equipment

- 1 tube serie macro $\varnothing 42 \times 300$ mm.
- 2 x 10 litres reservoirs for H2O, NaOH and 1 x 5 litres reservoir for BO3H3.
- Several connection tubes.



Reference	H2O reservoir L	NaOH reservoir L	BO3H3 reservoir L	Titrator	D x L x H mm	W	Kg
DNP-3000	10	10	5	yes	450 x 380 x 800	2000	30

KIT FOR AUTOMATIC TITRATION

Intended use

- Quantification of nitrogen and protein. It includes
- Magnetic stirring, reaction vessel and complete titrator. Features
- Potentiometric titrator.
- Multiple titration programs.
- pH calibration.
- Burette autocalibration.
- Results in N or total protein.
- 2 USB ports: - 1 to copy tests and extract data. - 1 to connect printer, keyboard or mouse.
- Ethernet port: optional software connection.

Specifications

- Resolution: 0,001 pH, 0,1 mV, $\pm 0,3^{\circ}\text{C}$
- Reproducibility: $\pm 0,001$ pH.
- Temperature compensation with probe Cat. Pt100.

PC CONNECTION SOFT-TITRA

- Communication software between the titrator and the PC.
- Connection via Ethernet.
- Control to start and stop analysis.
- Show real-time data directly from the workstation.
- Manage data stored locally or on a server (search, compare, delete, print, etc.).
- Export data.



Reference: SOFT-TITRA



PROTEIN-NITROGEN DISTILLER - DNP-1500-MP

Advantages

- 20 user programs
- Electric steam generator with control level of water.
- Pumps calibration by end-user
- Open door sensor

Features

- Control of the system by microprocessor with LCD screen
- Additionally, the system has two fixed programs:
 - Ammonium sulphate test / Preheating of the system.
- 9 preset programs to:
 - Alcohols, cereals, lactics, meats, fish, sewage waters, fertilizers, nuts, animal feed.
- Furniture in stainless steel epoxy painted

Safety

- Closed door detection.
- Digestion tube detection.
- Over-temperature thermostat.

Performance

- Measurement range: de 0,1 a 200 mg de N
- Nitrogen recovery : 99,5%
- Reproducibility: $\pm 1\%$
- Distillation time: 4 minutes for 100 mL
- Cooling water consume: 1,2 L/min.
- Electric power: 2000 W (100%)

Programmable Parameters and Values

- Water for dilution: 0-200 mL
- NaOH solution: 0-200 mL
- Reaction time (delay): 0-30 minutes
- Distillation time: 0-30 minutes or indefinite
- Steam power regulation: 30-100%

Supplied with the following accessories:

- 1 tube series macro $\varnothing 42 \times 300$ mm
- 2 containers of 10 litres for H₂O and NaOH.
- Several connection tubes.



Reference	H ₂ O Container	NaOH Container	H x W x D mm	Power W	Weight kg.
DNP-1500 MP	10 L	10 L	800 x 450 x 380	2000	30

Accessories

Reference	Description	Volume	Dimensions
TB-42300	Digestion tube	250 ml	42 (Ø) x 300 mm
TB-26300	Digestion tube	100 ml	26 (Ø) x 300 mm



TB-42300



TB-26300

Intended use

- Extraction system with solvents, according to Randall method for fat and soluble materials determination, in food, feeds, soils, detergents, polymers, paper pulp, fibers, rubbers, textiles, petrochemical products, pharmaceutical products, etc

Advantages

- Independent programming for the plate temperature, ("boiling") extraction time and ("rinsing") extraction time

Features

- Furniture in stainless steel, epoxy resin painted.
- Heating by an electric plate with armoured resistance to assure homogeneous distribution of heat.
- Control of temperature by microprocessor with P.I.D. action and probe Pt100 class A.
- Over temperature safety control by independent thermocouple and alarm seal set.
- In accordance with standardized international methods: AOAC, ISO, AACC.

Specifications

- Temperature range: room temp. +5°C to 220°C
- Solvent volume: up to 50 mL
- Solvent recovery: 60-70%
- Max. sample volume: 25 mL
- Reproducibility: ±1%
- Extraction thimbles: ø26 x 60 mm
- "Boiling" extraction time: 0-99 hours
- "Rinsing" extraction time: 0-99 hours
- Extraction time: 30-60 minutes
- Electric protection IP65



Referencia Reference Référence	N.º muestras Number of samples Nº échantillons	Reproducibilidad Reproducibility Reproductibilité	L x D x H mm	W	Frecuencia Frequency Fréquence	Kg
SX-6 MP	6	±1%	680 x 345 x 585	1500	50/60 Hz	46

Disolvente / Solvent / Solvant	Temperatura extracción / Extraction temperature / Température d'extraction
Éter de petróleo / Petroleum ether / Ether de pétrole	80-100 °C
Éter dietílico / Diethyl ether / Ether diéthylique	80-100 °C
Hexano / Hexane / Héxane	90-120 °C
Cloroformo / Chlorophorm / Chloroforme	100-140 °C
Tricloroetileno / Trichloroethylene / Trichloroéthylène	150-180 °C
Tolueno / Toluene / Toluène	200 °C

F-6P

Intended use

- Determination of raw/crude fiber contents per Weende or Wjstrom, acid detergent fibre (ADF) and neutral detergent fibre (NDF) per Van Soest and, acid detergent lignin (ADL)

Features

- Extraction and filtration without sample transfer (it avoids lose of sample)
- High reproducibility of conditions and results.
- Up to 36 analysis/day (Weende)
- Versatile use: samples can be dried/weighted at every phase if needed.
- System for six simultaneous samples.
- All electric and mechanic elements are conveniently protected
- Furniture in stainless steel epoxy painted.
- Additionally, it can be connected to the RAYPA cold extractor (EF-6) to guarantee the optimum working conditions of the system.



Pressure Contribution

- F-6P has a peristaltic pump that provides the necessary conditions for filtering.

Technical data

- Range of measurement: 0,1-100%
- Reproducibility: $\pm 1\%$ for a fibre contents level of 1-30%

Referencia Reference Référence	L x D x H mm	W	Frecuencia Frequency Fréquence	Kg
EF-6P	724 x 380 x 323	30	50/60 Hz	15

EF-6P

Cold fat extraction system

Intended use

- Designed for cold fat extraction with acetone or other solvents, of 6 samples simultaneous.
- Preliminary defeating before hot fibre extraction of samples with more than 1% fat content.
- Ideal for use in combination with the RAYPA Manual fibre determination system F-6P.

Features

- System for 6 simultaneous samples.
- Case made of stainless steel AISI 304 painted with epoxy resin.

Pressure Contribution

- EF-6P has a peristaltic pump that provides the necessary conditions for filtering.



Referencia Reference Référence	N.º muestras Number of samples Nº échantillons	Tamaño muestra g Sample size g Taille échantillons g	L x D x H mm	Precisión relativa Relative precision Précision relative	W	Kg
F-6P	6	0,5-3	724x345x584	$\pm 0,1\%$	1250	41