



Lab Solutions



# Food&Feed Line





## Lab Solutions

### Protein Determination in Food and Feed

#### JP Recirculating Water Pump for fumes aspiration

The JP recirculating water pump removes the toxic fumes with two time mode selection for 6 or 20-place digestions, and a manual control as well.

#### SMS Scrubber

This unit neutralizes the corrosive fumes during acid digestion or other processes with optimum disposal of toxic substances without emission to the workplace or environment.

The Scrubber and Pump together provide the most effective and affordable solution for neutralizing and disposing toxic fumes during digestions.



#### Kjeldahl method for nitrogen determination

The Kjeldahl's method is named after the Danish chemist who developed it more than a century ago. Today, the method is widely used according to official methods to determine nitrogen and proteins in food, feed, soil, wastewater, etc.

Velp Scientifica's equipment allows you to perform the Kjeldahl method easily and with reproducible results.

Foods are all substances that supply energy and the components essential for growth and preservation of the vital functions when ingested.

Their compositions must be defined in terms of proteins, carbohydrates and fats for their nutritional content, in conformity with international standards.

The innovative equipment manufactured by VELP Scientifica provides substantial assistance to food and feed specialists involved in production and research.

## Food&Feed Line

Can be connected to



UDK152 - Automatic Distillation and Titration Unit



High performance and considerable water savings thanks to the innovative titanium condenser (Patent Pending)



Maintenance-free steam generator using deionized water (Patented)



UDK152



Easy to read control panel: graphic display, integrated alphanumeric keyboard and easy-to-use multi-tasking software



Officially approved colorimetric titration method (AOAC, EPA, ISO) simplifies validation

#### Features and Benefits

- Fully Automatic Distillation unit with colorimetric Titrator
- Reduced running costs and downtime through optimized applications and 30 pre-defined standard methods
- Easy to operate and program
- High resistance to chemical corrosion
- High level of safety systems for user protection
- Automatic calculation of protein concentration and storage up to 3500 results in memory
- PC connection for software data handling -LIMS compatible- IQ/OQ/PQ procedures and protocol are available

### DK Series Heating Digesters

Wide range of digesters in different sizes and configurations, from 6 to 42 samples. Slim version available (DK8S and DK20S).

### Features and Benefits

- Simple operation thanks to 4 keys that control all functions
- Store up to 20 user programs and up to 4 temperature ramps for each program
- Accurate temperature control by microprocessor of  $\pm 0.5^{\circ}\text{C}$
- RS-232 connectivity



### UDK Series Distillation Units

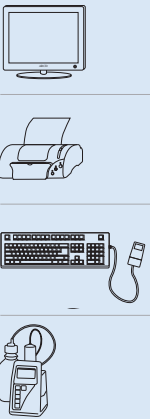
The Distillation units are equipped for a variety of applications including the determination of protein, nitrogen, phenols, volatile fatty acids, Devarda Nitrogen determination according to official methods AOAC, EPA, DIN and ISO.

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

#### All UDK Series Distillation Units have:

- Maintenance-free steam generator (Patented)
- Innovative titanium condenser (Patent Pending)
- Technopolymer splash-head (alkaly resistant)

Can be connected to



UDK142 Automatic Steam Distillation Unit



**UDK142**

**Titration**

#### Features and Benefits

- The UDK142 can be connected to the most popular titrators
- All parameters are fully programmable
- Push button operation
- Accepts multiple size flasks and tubes
- High durability to chemical corrosion
- Visible identification of process stage

Can be connected to



UDK132 Semiautomatic Steam Distillation Unit



**UDK132**

- Mid range model automates dilution water and sodium hydroxide addition
- Safety features to assure safe operation
- Accepts multiple size flasks and tubes

Can be connected to



DK Series Heating Digesters

## Raw Fiber Determination

In the field of qualitative and quantitative control of food and feed, increasing importance is given to "raw fiber", which by convention is defined as indigestible residue. Raw fiber determination is performed mainly in chemical, analytical and research laboratories within the Food and Feed industry.

### Raw Fiber Extraction Units

The FIWE units, 3 and 6 position, for raw fiber determination, allow cold and hot extraction providing accurate and reproducible results.



FIWE 6

FIWE 3

### COEX Cold Extractor

COEX allows rapid defatting of samples in the same glass crucibles used by FIWE 3 and FIWE 6 for subsequent crude fiber determination. Normally used with samples with high (> 1%) fat content.



COEX

## Raw Fiber Determination

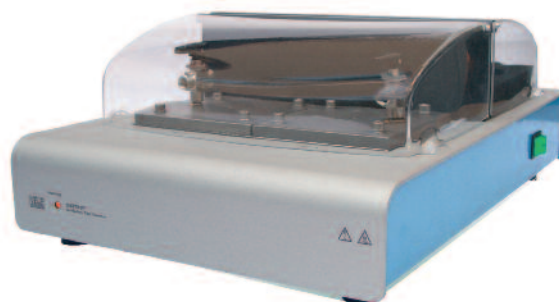


UDK 127

## Shelf- Life Studies

### OXITEST Oxidation Test Reactor

OXITEST is able to provide high added value information related to the fat oxidation processes in samples of foods, oils and fats. The determination of the oxidation stability of samples (solid, doughy or liquid), in order to determine their quality or to determine their state of preservation is made directly on the **whole sample**, without preliminary fat separation.



OXITEST

UDK127 Basic Distillation Unit

- Basic model with automatic alkali addition
- Innovative design
- Safety features to assure safe operations
- Accepts multiple size flasks and tubes
- Plastic cover for added resistance to chemical corrosion
- Top of the range technology



**CSF6**

**Dietary Fiber Filtration Unit**

The American Association of Official Analytical Chemists proposes the method 985.29 for dietary fiber determination by thermostable enzymes. The CSF6 filtration equipment is developed conforms to this method. The unit is equipped with a peristaltic pump that has high suction capacity and electronic control of counterpressure, allowing a sharp reduction of filtration time. Among the main analytical applications are the determination of total soluble and insoluble dietary fiber. Dietary fiber includes cellulose, hemicelluloses, lignin, pectin, rubbers and waxes.



**GDE**

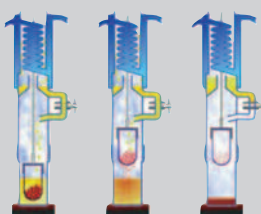
**Enzymatic Digester**

This thermostating unit consists of an immersion heating head, a transparent tank and a magnetic stirrer with six places. It allows precise control of temperature during critical enzymatic digestion.



**Soxhlet technique**

The solubilization of extractable components is performed by a cold solvent dropping from a reflux condenser. Consequently, a complete extraction lasts many hours.



**Randall's technique**

The first phase of extraction is performed by immersing a sample-containing thimble in boiling solvent followed by a washing with cold refluxing solvent. The fast solubilization achieved by the hot solvent results in a sharp reduction of extraction time.

**SER148 Solvent Extractors**

Extraction by an organic solvent allows a quantitative separation of a component or group of components (e.g. fat) from a mixture of solids. Examples of such applications include the analysis of food, feed, detergents, rubber and plastic formulates, pharmaceutical products, soils, etc. for their content of soluble components, such as fat, tensides, plastifiers and pesticides.

Our solvent extraction equipment includes three or six positions for solid or semisolid products, according to Randall's technique. The equipment optimizes manual operations, reduces extraction time, maximizes solvent recovery and ensures completely safe operation. The equipment includes a safety system that warns the lack of cooling water. It is possible to print or save data related to the extraction. Comply with IP 55 protection level.



**SER148/6**

**SER148/3**

**HU6 Hydrolysis Unit**

The HU6 Hydrolysis Unit is the right solution for acid and basic hydrolysis of food and feed samples, prior to solvent extraction using the SER148. The HU6 performs hidrolisis in complete safety and handles six samples at a same time in order to maximize productivity. The HU6 works in combination with the SER148 according to Official Procedures, providing highly accurate and precise results for fat content determination.



**HU6**

SER148 Solvent Extractor

Can be connected to



Model	Code No 230V		Code No 115V		Power W	Temp. °C	Weight kg	Dimensions mm (WxHxD)	Accessories
	50 Hz	60 Hz	50 Hz	60 Hz					
DK 6	F30100182		F30110182		1100	from room temp. to 450	10	293x152x339	1,2,3,6,7,9,10[12,13,23,37,55,56,63
DK 8S	F30100020		F30110020		1350	from room temp. to 450	11	233x152x448	1,4,5,14,18,37,55,56,63
DK 20S	F30100181		-		2300	from room temp. to 450	22.5	328x152x518	1,19,20,22,24,31,37,55,56,63
DK 20	F30100184		-		2300	from room temp. to 450	24	393x152x446	1,7,9,10,11,15,20,21,22,24,25,37,55,56,63
DK 20/26	F30100185		F30110185		1100	from room temp. to 450	10	293x152x339	6,8,13,28,37,51,55,56,63
DK 42/26	F30100186		-		2300	from room temp. to 450	24.5	393x152x446	8,20,21,29,37, 52,55,56,63
DK 6/48	F30100188		F30110188		1100	from room temp. to 450	8.2	293x152x339	6,13,17,23,30,32,37,55,56,63
JP	F30620198	F30630198	-	F30640198	160	-	8.4	250x400x370	-
SMS	F307C0199*		F307C0199*		-	-	3.5	300x500x190	43,44
UDK 127	F30200183		F30210183		2100/1700	-	23	320x770x386	1,8,30,33,34,35,60
UDK 132	F30200189		-		2100	-	33	330x775x470	1,8,26,30,33,34,35,37,55,59
UDK 142	F30200191		-		2100	-	35	330x775x470	1,8,16,30,33[35,37][41,55,58
UDK 152	F30200192		-		2200	-	45	440x775x470	1,8,30,33,34,35,37,50,55,57
SER 148/3	F30300240		F30310240		500	from 100 to 260	30	480x620x390	42,45,46,47,55,61
SER 148/6	F30300242		F30310242		950	from 100 to 260	40	700x620x390	27,42,45,46,47,48,49,55,61
HU6	F30300110		F30310110		1350	from room temperature to 200	14,5	335x570x450	64
CSF 6	F30420210	F30430210	-	F30440210	220	-	28	750x420x380	54
GDE	F30400209		F30410209		900	from room temp. to 105	6,1	413x295x410	36
FIWE 3	F30520201	F30530201	-	F30540201	900	-	35	530x620x390	53,54,62
FIWE 6	F30520200	F30530200	-	F30540200	1200	-	46	760x620x390	53,54,62
COEX	F30520204	F30530204	-	F30540204	220	-	19	730x300x380	54
OXITEST	F30900248		-		900	from room temperature to 110	16,5	365x190x485	-

\* No Voltage

Number	Description	Code No	Number	Description	Code No
1	Test tubes Ø 42x300 mm, 300 ml, 3 pcs/box	A00000144	33	Test tube connection Ø26, Ø48mm, 500 ml Kjeldahl balloon	A00000043
2	Glassware handle with heat shields, DK6	A00001111	34	Test tube Ø 80x300 mm for alcohol determination	A00001083
3	Suction cap for DK6	A00001096	35	Spacer for test tube Ø 48x260 mm	A00000062
4	Support system for DK8S	A00000064	36	Beaker 400 ml	A00000999
5	Suction cap for DK8S	A00000065	37	Serial cable RS232	A00000005
6	Support system for DK6, DK20/26 and DK6/48	A00001206	38	Connection cable for Mettler titrator	A00191200
7	COD test tubes for Ø 42x200 mm, 200 ml, 3 pcs/box	A00000145	39	Connection cable for Metrohm titrator (CTRL)	A00191201
8	Test tubes Ø 26x300 mm, 100 ml, 6 pcs/box	A00000146	40	Connection cable for Metrohm titrator (RS232)	A00191202
9	Air refrigerator with ground cone	A00001041	41	Connection cable for Schott titrator	A00191203
10	Antisplash bell	A00001045	42	Serial cable for SER 148	A00000011
11	PTFE sheats for 29/32 cones	A00001042	43	Filter for activated carbon	A00001165
12	Glassware handle for COD, DK6	A00001049	44	Pack of 10 refill of activated carbon	A00001164
13	Stand for glassware handle, DK6, DK20/26, DK6/48	A00001097	45	Thimble weighing cup	A00001146
14	Glassware handle & heat shields for DK8S	A00000063	46	Extraction cups, 6 pcs/box	A00000142
15	Glassware handle with heat shields for DK20	A00001112	47	Vafion seal	A00000061
16	Titrator Tiroline Easy K	R30800194	48	Pincer for weighing cups	A00001147
17	Glassware handle with heat shields, DK6/48	A00001113	49	Thimbles stand	A00001149
18	Stainless steel stand for glassware handle, DK8S	A00000067	50	Syringe 50 ml for UDK 152 burette	A00000066
19	Support system, DK20S	A00000023	51	Suction cap for DK 20/26	A00109626
20	Stainless steel for glassware handle, DK20, DK20S,DK42/26	A00001094	52	Suction cap for DK 42/26	A00109326
21	Support system for DK20, DK42/26	A00001204	53	Water spray device for FIWE	A00001135
22	Suction cap, DK20S, DK20	A00001093	54	Glass crucible, 6 pcs/box	A00000140
23	Stainless steel drip tray for DK6, DK6/48	A00001200	55	Printer	A00001009
24	Stainless steel drip tray for DK20, DK20S	A00001202	56	Null modem connector for printer	A00000010
25	Glassware handle for COD, DK20	A00001098	57	IQ/OQ/PQ Manual UDK152	A00000069
26	Keyboard	A00000009	58	IQ/OQ/PQ Manual UDK142	A00000070
27	Handling device for extraction cups with integrated heat shield	A00001145	59	IQ/OQ/PQ Manual UDK132	A00000071
28	Glassware handle with heat shields for DK20/26	A00001110	60	IQ/OQ/PQ Manual UDK127	A00000072
29	Glassware handle with heat shields for DK42/26	A00001109	61	IQ/OQ/PQ Manual SER148	A00000073
30	Test tubes Ø 48x260 mm	A00001088	62	IQ/OQ Manual FIWE	A00000074
31	Glassware handle & heat shields for DK20S	A00001114	63	IQ/OQ Manual DK	A00000075
32	Suction cap for DK6/48	A00001101	64	Glassware kit 3 positions	A00000085



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