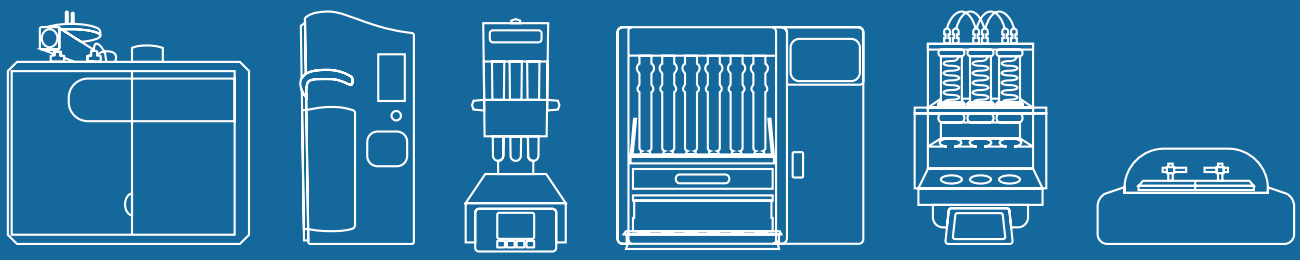
VELP SCIENTIFICA

ANALYTICAL INSTRUMENTS

Products catalogue



www.velp.com

VELP Scientifica

Established in 1983, VELP Scientifica is today one of the world's leading manufacturers of analytical instruments and laboratory equipment that has made an impact on the world-wide market with Italian products renowned for innovation, design and premium connectivity.

We owe our success to a rich patrimony of ideas, significant investments in R&D and technological development aiming at maximizing productivity as well as reducing time-to-market.

VELP is a pioneer of smart lab technology. Our analytical instruments and laboratory equipment are accelerating scientific work every day giving scientists the possibility to monitor and control VELP technology from a virtual dashboard accessible from any device, everywhere and anytime!

VELP is today a global company with an expanding local focus. Our internationalization process has led us to open local subsidiaries that provide service to our customers in different parts of the world:

- **VELP Scientific, Inc.** in Long Island (USA) offering sales and technical support for the United States, Canada and Mexico.
- **VELP China Co. LTD** in Shanghai guarantees a local presence in China through commercial and technical support.

VELP has always generated value for its customers through close cooperation with its qualified distribution network which today counts more than 300 distributors in 130 countries.

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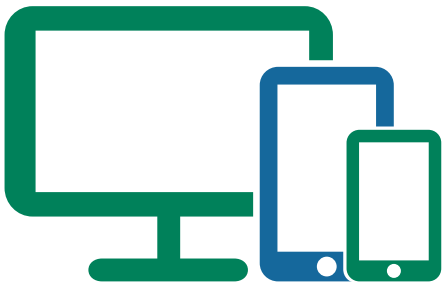
VELP Ermes

SMART LAB CLOUD PLATFORM

VELP Ermes creates a connected ecosystem of devices, people and data that transmit information between each other cutting down distances and expanding your scientific potential.

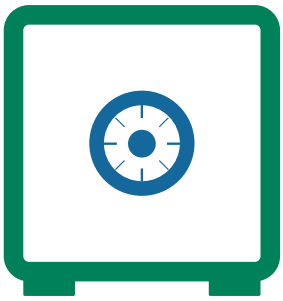


Monitor and Control your instruments

Monitor and manage multiple instruments 24/7 from your internet devices. Real-time visualization of your analysis and of the instruments working conditions and get immediate notifications and alerts.

Remote Service Support

Thanks to the direct contact with VELP specialists and official partners, VELP Ermes can guide you to get the maximum from your instruments.



Safely Manage your Data

Collect and store your data with the maximum level of encryption and cyber-security standards. Generate and share reports of your analysis in multiple formats.

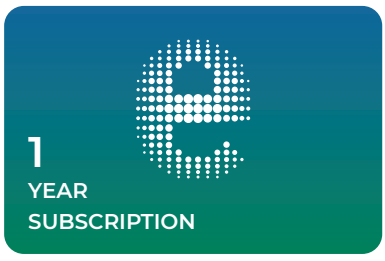
Your Instruments are Always Updated

Effortlessly connect your instrument via secure Wi-Fi or cable and update the software immediately free of charge.

VELP ERMES SUBSCRIPTIONS

Configure your account and your instruments and start enjoying all the services and capabilities of VELP Ermes for free for 3 months. Decide later whether to extend your subscription with an Ermes Card for 1 or 3 years. Each Ermes Card allows you to connect up to 10 instruments in your company.

FREE TRIAL
3 MONTHS PER INSTRUMENT



1 YEAR / 10 INSTRUMENTS
Code E00010012

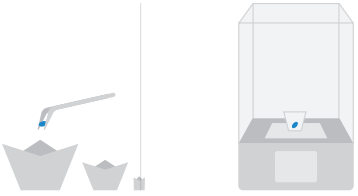
3 YEARS / 10 INSTRUMENTS
Code E00010036

Elemental Analyzers

Elemental Analyzers are state-of-the-art analytical instruments to determine the elemental composition of a sample. It finds application in various industries and fields for the determination of Nitrogen, Protein content, Carbon, Carbon-Nitrogen Ratio, Hydrogen, Sulfur and Oxygen.

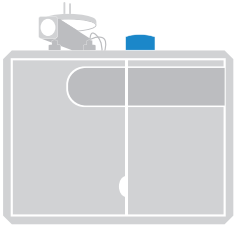
Through safe combustion and pyrolysis, VELP Elemental Analyzers enable access to a wealth of information from the sample in a few minutes. Running completely unattended, VELP Elemental Analyzers provide extremely accurate and reliable results, preventing laboratory professionals' exposure to chemicals.

1 SAMPLE PREPARATION & WEIGHING

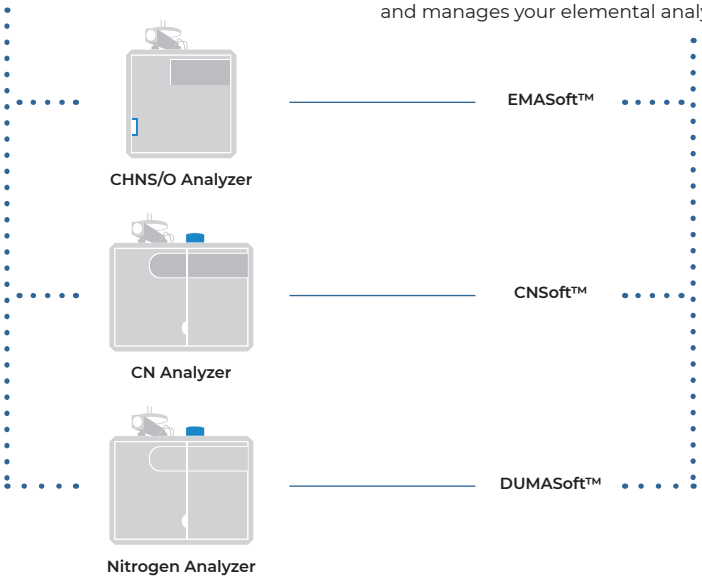


Consumables and accessories are designed to make sample preparation easy and efficient.

2 ANALYSIS



Choose the VELP solution for your needs.



3 SOFTWARE

VELP provide solutions that controls and manages your elemental analyzers.

Industries & Application

FOOD & BEVERAGE
Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Oils, Fats, Brewery, Oils Seeds

FEED
Pet food, Forages, Feedstuff, Feed ingredients

AGRICULTURE
Soils, Plants, Fertilizers, Cannabis

ENVIRONMENTAL
Waste, Wastewater, Water, Sludges, Sediments

PHARMA & LIFE SCIENCE
Pharmaceutical products, Vaccines, Active ingredients

CHEMICAL AND PETROCHEMICAL
Rubber, Plastic, Lubricants, Petroleum products, Coal fuels, Coke

COSMETIC
Creams, Lotions, Powders, Wax stripes

CHNS-O Analyzer

EMA 502

The EMA 502 Elemental Analyzer CHNS-O is the accurate and reliable solution for the simultaneous determination of carbon, hydrogen, nitrogen, sulfur and oxygen in various industrial sectors such as pharma and life science, organic chemistry, petrochemistry and energy, environmental, agronomy, food & feed.
Working according to the official reference standard.

All-IN-ONE SOLUTION
Combustion and pyrolysis in a single analyzer avoiding the need for external modules.

ACCURATE
EMA 502 is a flexible and robust analyzer, designed for superiorreliability with high performance and accuracy.

UNMATCHED EASE-OF-USE
Intuitive operation with the powerful EMASoft™ software. Comprehensive reporting features and pre-loaded methods of analysis.

ermes enabled

INSTRUMENT - CODE

EMA 502	230 V / 50-60 Hz	F30800100

The EMA 502 Elemental Analyzer is supplied with all necessary parts to perform up to 1000 analyses CHNS.

Carbon Nitrogen Analyzer

CN 802

The CN 802 is a robust and flexible combustion analyzer, that works in accordance with official reference methods. It determines the carbon and nitrogen in many industrial sectors such as agriculture, environmental, food & feed and chemical.

ROBUST AND FLEXIBLE
Fully automatic determination of TC, TOC and TIC, TN and Carbon/ Nitrogen Ratio.

PRECISE
The NDIR (Non Dispersive Infrared) detector and LoGas™ TCD (Thermal Conductivity Detector) designed by VELP, guarantees unmatched precision and unrivaled LOD.

INTUITIVE
The CN 802 is easy to use thanks to the user-friendly CNSoft™ software which is equipped with maximum safety control of the instrument.

ermes enabled

INSTRUMENT - CODE

CN 802	230 V / 50-60 Hz	F30800090

The CN 802 is supplied with everything necessary for the first 1000 analysis and complimentary spare parts.

Dumas Nitrogen Analyzer

NDA 702

The NDA 702 Dumas elemental analyzer is the best solution for high throughput labs looking for a fast and safe analyzer with the possibility to choose between Helium and Argon as carrier gas.

VERSATILE
Seamlessly choose between Helium and Argon as carrier gas without hardware modifications.

FAST
NDA 702 produces N/Protein results in just 3 to 4 minutes totally unsupervised and cloud-enabled.

PRECISE AND INTUITIVE
The lowest LOD of 0.001 mgN with Helium assures high precision results and excellent reproducibility. The easy-to-use DumaSoft™ software provides an intuitive user experience.

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INSTRUMENT - CODE

NDA 702	230 V / 50-60 Hz	F30800080

The NDA 702 is supplied with everything necessary for the first 1000 analysis and complimentary spare parts.

NDA 701

NDA 701 is dramatically faster, easier, and safer than a traditional Kjeldahl system for N/protein determination according to the Dumas Method. The NDA 701 is a safe analyzer that does not require aggressive chemicals or time-consuming analysis steps, just prepare your sample and walk away!

VERSATILE
Load different matrix of solid, semi-solid and liquid samples for results in 3-4 minutes.

PRECISE
The VELP LoGas™ TCD works with no reference gas ensuring accuracy and precision.

INTUITIVE USER INTERFACE
VELP DUMASoft™ software created to ensure maximum ease of use and fast results.

ermes enabled

INSTRUMENT - CODE

NDA 701	230 V / 50-60 Hz	F30800070

The NDA 701 is supplied with everything necessary for the first 1000 analysis and complimentary spare parts.

Consumables

A wide range of high-performance consumables for routine operation and maintenance of the VELP elemental analyzers. This includes high-quality quartz reactors, metallic reactors, ash collectors, capsules, reagents, catalysts of efficient performance and long life, standards for instrument calibration (EDTA, Sulphanilic Acid, Oat Meal) and seals.

1000 analyses kit	A00000194
2000 analyses kit	A00000270
4000 analyses kit	A00000271
Super-Absorbent Powder, 10 g	A00000317
Quartz wool, 50 g	A00000154
Vcopper™ High Reduction Efficiency, 470 g	A00000240
Copper oxide, 50 g	A00000157
Velpcatalyst with inert layer, 36 g	A00000320
EDTA, 100 g	A00000149
Tin Foil Cups 36x36 mm, 150 pcs	A00000153
Tin foils 50x50mm, 450 pcs	A00000260
Silver foil 35x35 mm, 100 pcs	A00000371
Mold for tin foils 50x50 mm	A00000262
Quartz reactor tube	A00000162
Metallic reactor tube	A00000321
Pre-Packed Combustion Reactor	A00000158
Pre-Packed Reduction Reactor	A00000226

Quartz ash insert	A00000161
Ceramic ash insert	A00000198
Metallic ash collector	A00000322
Anhydrone, 454 g	A00000225
High temperature sealing grease	A00000236
Kit approx. 1000 analysis for CHNS	A00000432
Kit approx. 1000 analysis for Oxygen	A00000433
Quartz reactor tube diam. 18 mm	A00000435
Pre-packed CHNS reactor	A00000443
Pre-packed O reactor	A00000444
Quartz ash collector diam. 13 mm	A00000445
Tungsten oxide, 25 g	A00000439
Nickel wool, 2 g	A00000447
Nickel Carbon wool, 5 g	A00000440
Quartz Chips, 50 g	A00000441
Tin Foil Cups, 5x9 mm 250 pcs	A00000436
Sulphanilic acid certified, 5 gr	A00000434

Digestion Units

Nitrogen determination has a long history in the area of analytical chemistry. Internationally recognized and highly reliable, the Kjeldahl Method is an analytical reference for the quantitative determination of nitrogen contained in organic substances and inorganic compounds (ammonia and ammonium).

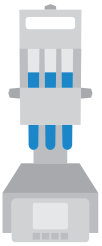
The Kjeldahl analysis is extremely versatile, as it can handle a very wide range of samples from food & feed (grain, meat, fish, milk, dairy, seeds, vegetables), beverages, environmental (agriculture, oilseeds, soil, fertilizers, water, wastewater, sludge) to chemical and pharmaceutical industries (paper, textiles, rubber, plastic, polymer).

SAMPLE

1 SAMPLE PREPARATION

Genuine consumables designed to provide a solution for digestion, including catalyst tablets and nitrogen-free weighing boats.

2 DIGESTION



Place the sample into the VELP Digesters. Choose automatic or semi-automatic models.

Hazardous fumes generated during the digestion should be neutralized using JP Pump and SMS Scrubber.

3 DISTILLATION

Use the VELP Distillation Units for the determination of analytes in your sample.

4 TITRATION

You can now perform the final step. Choose automatic titration with UDK 159-169 or external titration with UDK 149.

NITROGEN mg (Protein %)

The Kjeldahl method consists in a procedure of catalytically supported mineralization of organic material in a boiling mixture of sulfuric acid and sulfate salt at digestion temperatures higher than 400 °C. During the process the organically bonded nitrogen is converted into ammonium sulfate. Alkalizing the digested solution liberates ammonia which is quantitatively steam distilled and determined by titration.

Digesters are widely used in laboratories performing analysis for diversified applications in food&feed, beverage (nitrogen, protein, Total Kjeldahl Nitrogen), environmental (COD, Total Kjeldahl Nitrogen, Heavy Metal Trace), chemical and pharmaceutical (organic nitrogen) industries.

Industries & Application

FOOD & BEVERAGE
Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Fats, Brewery, Wine, Spirits

FEED
Pet food, Forages, Feedstuff, Feed ingredients

AGRICULTURE
Soils, Plants, Fertilizers

ENVIRONMENTAL
Sludges, Sediments, Water, Wastewater

PHARMA & LIFE SCIENCE
Pharmaceutical products, Vaccines, Active ingredients

CHEMICAL AND PETROCHEMICAL
Rubber, Plastic, Lubricants, Cellulose nitrates, Oils, Coal, Coke Paper

COSMETIC
Creams, Lotions, Powders, Wax stripes

Automatic Digestion

DKL Series

The DKL Series digesters are fully automatic units where manual operations have been drastically reduced: lowering and lifting of the samples takes place automatically DKL digesters work in accordance with a variety of Standards such as AOAC, ISO, EPA, DIN etc.

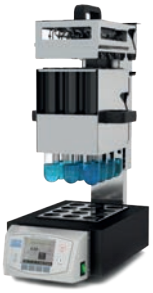
FULLY AUTOMATIC
The auto-lift facilitates the operator by reducing strain and time spent in manual tasks. The customizable programs allow for repeatable processes to run fully unattended.

SAFE AND ROBUST
The separated control panel is protected from heat and spills ensuring reliability and a long lifespan. The innovative microprocessor controls the temperature of the block and is supported
by a safety thermostat.

USER FRIENDLY
The intuitive control panel makes operating and monitoring every stage of the analysis effortless. Many standard methods are pre-loaded and more can be customized and saved.

CONFIGURATIONS - DKL Series

DKL 8



DKL 12

DKL 20

DKL 42/26

INSTRUMENT - CODE

DKL 8	230 V / 50-60 Hz	S30100200
	115 V / 50-60 Hz	S30110200
DKL 12	230 V / 50-60 Hz	S30100190
	115 V / 50-60 Hz	S30110190
DKL 20	230 V / 50-60 Hz	S30100210
DKL 42/26	230 V / 50-60 Hz	S30100180

The DKL Series are supplied with lift, suction cap and drip tray, sample rack and test tubes

Semi-automatic Digestion

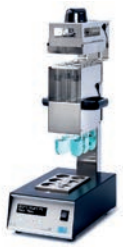
DK Series

The DK Series consists of basic digestion blocks providing accuracy, high thermal homogeneity and minimum energy consumption. These digester are suitable for Kjeldahl digestion and selected models can be combined with accessories in order to perform COD and Trace Metal Determination applications.

EXCELLENT ACCURACY AND REPEATABILITY
The aluminum heating block ensures high thermal homogeneity heating up to 450°C.
- Temperature selection with 1°C steps and a precision of ± 0.2°C.
- Heating block temperature stability of ± 0.5°C.

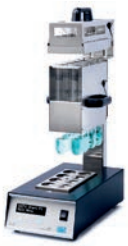
INTUITIVE INTERFACE
The bright digital display provides maximum visibility and easy reading of the information.
- Supports the recording of up to 20 methods with 4 temperature ramps.
- Easy to use interface with 4 buttons.

CONFIGURATIONS - DK Series



DK 6 System

DK 6/48 System



DK 8 System

DK 18/26 System

DK 20 System

DK 42/26 System

INSTRUMENT - CODE

		SYSTEM	HEATING BLOCK
DK 6	230 V / 50-60 Hz	S30100400	F30100400
	115 V / 50-60 Hz	S30110400	F30110400
DK 6/48	230 V / 50-60 Hz	S30100410	F30100410
	115 V / 50-60 Hz	S30110410	F30110410
DK 8	230 V / 50-60 Hz	S30100420	F30100420
	115 V / 50-60 Hz	S30110420	F30110420
DK 18/26	230 V / 50-60 Hz	S30100430	F30100430
	115 V / 50-60 Hz	S30110430	F30110430
DK 20	230 V / 50-60 Hz	S30100440	F30100440
DK 42/26	230 V / 50-60 Hz	S30100450	F30100450

The DK Digester System are supplied with support system, suction cap and drip tray, sample rack and test tubes

Fumes Neutralization

SMS Scrubber

Designed to neutralize corrosive and toxic fumes produced during oxidative mineralizations, such as digestion. SMS scrubber has a wide range of applications and provides its maximum efficiency when combined with JP Water Recirculation Pump for smoke suction.

HIGHLY EFFICIENT
Neutralization in 3 stages: condensation, neutralization, absorption.

SAFETY
The absorption with activated carbon (Optional Acessory) is ideal also for high fume levels.

WIDE RANGE OF APPLICATION
Thanks to the elevated surface of contact between gas and liquid.

INSTRUMENT - CODE		
SMS	-	F307C0199

JP Recirculating Water Pump

Recirculating Water Pump that ensures optimum fume aspiration during digestion. The use is facilitated by special technical devices, such as the level indicator for water control and the tap for emptying the tank with two handles.

EXTREMELY RESISTANT TO CORROSION
The materials make the instrument solid and long-lasting.

OPTIMAL SUCTION
The two programming modes ensure that the suction is adapted to the samples processed.

CONSIDERABLE WATER SAVING
The continuous water recirculation offers high efficiency and savings.

INSTRUMENT - CODE		
JP	230 V / 50 Hz	F30620198
	230 V / 60 Hz	F30630198
	115 V / 60 Hz	F30640198

Consumables

Genuine catalyst tablets KjTabs™ and nitrogen-free weighing boats for reliable Kjeldahl analysis.

KjTabs™ catalyst and antifoaming tablets

The KjTabs™ consist of accurately pre-dosed tablets composed of sulfate, to increase the boiling point of sulphuric acid, plus a metal salt such as Copper (Cu), Selenium (Se) or Titanium (Ti) to improve the speed and efficiency of the mineralization process.

SAMPLE
- Easy to use with all Kjeldahl Digesters
- Wide choice of catalysts for the majority of samples
- Effective foam reduction tablets
- Environmentally friendly and safe

VELP KJTABS MODEL	CODE	COMPOSITION	TYPICAL APPLICATIONS
KjTabs™ VCM Catalyst Tablets	A00000274	3,5g K_2SO_4 + 0,1 g $CuSO_4$ x 5 H_2O	Milk, animal feed, wheat, meat, wastewater
KjTabs™ VKPC Catalyst Tablets	A00000275	4,5g K_2SO_4 + 0,5 g $CuSO_4$ x 5 H_2O	Bread and baked products
KjTabs™ VCT Catalyst Tablets	A00000276	5g K_2SO_4 + 0,15g $CuSO_4$ x 5 H_2O + 0,15g TiO_2	Milk and dairy products
KjTabs™ VST Catalyst Tablets	A00000277	3,5g K_2SO_4 + 3,5mg Se	Beer, barley malt, plant
KjTabs™ VTCT Catalyst Tablets	A00000281	3,5g K_2SO_4 + 0,105g $CuSO_4$ x 5 H_2O + 0,105g TiO_2	Milk and dairy products
KjTabs™ VW Catalyst Tablets	A00000282	4,875g K_2SO_4 + 0,075g $CuSO_4$ x 5 H_2O + 0,050g Se	Animal feed and pet food, forage and feedstuffs, grain, and oilseeds
KjTabs™ VS Antifoaming Tablets	A00000283	0,97g K_2SO_4 + 0,03g Silicone	Added in combination with KjTabs™ catalylist tablets

Nitrogen-free Weighing Boats

VELP weighing boats are the perfect solution for challenging transfer operations of powders or syrupy samples to mineralization test tubes.

Weighing boats 70x23x15 mm, 100 pcs/box	CM0486001
Weighing boats 58x10x10 mm, 100 pcs/box	CM0486000

Distillation Units

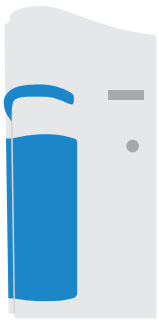
UDK Series

The UDK Series Distillation Units are designed to meet the most challenging demands and requirements for diverse applications, according to international standards: Kjeldahl nitrogen TKN, proteins, ammoniacal nitrogen, nitric nitrogen, (Devarda), phenols, TVBN and volatile acids, cyanides, and alcohol content. Five different UDK models are available with different automation levels to match any laboratory requirements.

SEMI-AUTOMATIC DISTILLATION

AUTOMATIC DISTILLATION AND TITRATION

UDK 129



- Automatic NaOH addition

MANUAL TITRATION

UDK 139

- Automatic NaOH addition
- Automatic H_2O addition

MANUAL TITRATION

UDK 149

- Automatic NaOH addition
- Automatic H_2O addition
- Automatic H_3BO_3 addition

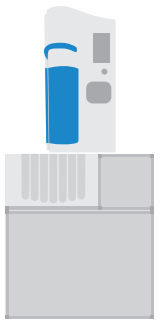
EXTERNAL TITRATION

UDK 159

- Automatic NaOH addition
- Automatic H_2O addition
- Automatic H_3BO_3 addition

AUTOMATIC TITRATION

UDK 169



- Automatic sample feeding with Autokjel Autosampler
- Automatic NaOH addition
- Automatic H_2O addition
- Automatic H_3BO_3 addition

AUTOMATIC TITRATION

Industries & Application

FOOD & BEVERAGE
Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Fats, Brewery, Wine, Spirits

FEED
Pet food, Forages, Feedstuff, Feed ingredients

AGRICULTURE
Soils, Plants, Fertilizers

ENVIRONMENTAL
Sludges, Sediments, Water, Wastewater

PHARMA & LIFE SCIENCE
Pharmaceutical products, Vaccines, Active ingredients

CHEMICAL AND PETROCHEMICAL
Rubber, Plastic, Lubricants, Cellulose nitrates, Oils, Coal, Coke Paper

COSMETIC
Creams, Lotions, Powders, Wax stripes

UDK 169

The UDK 169 is a fully automated distiller with an integrated colorimetric titrator for premium performance and continuous operation. It offers the highest sample throughput available when connected to the AutoKjel autosampler. Just load your samples and walk away: the system will analyze all the samples unattended and store the results.

FULLY AUTOMATED ANALYSIS
Reagents addition, steam output setting, automatic distillation and titration ensuring the best performance.

AUTOKJEL AUTOSAMPLER
For a highly productive system capable of autonomously processing up to 24 samples.

EXCELLENT USABILITY
7" high resolution color touch screen and easy to use multitasking software.

EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR
Two systems developed to ensure high performance and to guarantee safe working conditions.

ermes enabled

INSTRUMENT - CODE

UDK 169	230 V / 50-60 Hz	F30200165
AutoKjel	230 V / 50-60 Hz	F30200430
UDK 169 with AutoKjel	230 V / 50-60 Hz	S30200165

UDK 159

The UDK 159 combines all the advantages of a fully automatic distillation with the added benefits of integrated colorimetric titration (AOAC approved) for a high-performance all-in-one system.

FULLY AUTOMATED ANALYSIS
Reagents addition, steam output setting, automatic distillation and titration ensuring the best performance.

EXCELLENT USABILITY
7" high resolution color touch screen and easy to use multitasking software.

EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR
Two systems developed to ensure high performance and to guarantee safe working conditions.

ermes enabled

INSTRUMENT - CODE

UDK 159	230 V / 50-60 Hz	F30200155

UDK 149

The UDK 149 is an automatic distillation unit with external potentiometric titrator connection that ensures higher sample throughput, flexibility and premium precision.

EXTERNAL POTENTIOMETRIC TITRATOR
The combination with an external potentiometric titrator offers a very convenient automatization of the Kjeldahl method and ensures versatility, accuracy and precision.

EXCELLENT USABILITY
7" high resolution color touch screen and easy to use multitasking software.

EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR
Two systems developed to ensure high performance and to guarantee safe working conditions.

ermes enabled

INSTRUMENT - CODE

UDK 149	230 V / 50-60 Hz	F30200145

External Potentiometric Titrator

The UDK 149 connectivity is optimized for the most common potentiometric titrators to guarantee fully automated operations.

The optional TITROLINE 5000 Automatic Titrator is very compact for simple routine titrations. GLP compliant results can be documented on a connected printer or USB-memory stick.

TITRATION FEATURES
- Automatic Titration
- Real time volume dosing of the titrant
- Automatic cleaning and washing of the titrant solution vessel
- Titrations to pH, mV - endpoint (2 EP)
- Titrations with dynamic or linear titration solution additions
- Maximum versatility

UDK 139

Semi-automatic distillation for Kjeldahl protein determination, Non-Protein Nitrogen (NPN), volatiles and more. Excellent value for money with high reliability and advanced performance.

HIGH RELIABILITY
The semi-automatic process ensures efficient and advanced performance.

EXCELLENT USABILITY
7" high resolution color touch screen and easy to use multitasking software.

EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR
Two systems developed to ensure high performance and to guarantee safe working conditions.

ermes enabled

INSTRUMENT - CODE

UDK 139	230 V / 50-60 Hz	F30200135

UDK 129

Entry-level distillation for Kjeldahl protein determination, Non-Protein Nitrogen (NPN), volatiles and more. Simple and reliable solution with unique features.

HIGH PRECISION PUMPS
To ensure constant accurate dosing of reagents.

EASY-TO-USE
The bright LCD display and easy-to-use menu, guide the operator in setting the instrument working conditions.

EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR
Two systems developed to ensure high performance and to guarantee safe working conditions.

INSTRUMENT - CODE

UDK 129	230 V / 50-60 Hz	F30200125
	115 V / 50-60 Hz	F30210125

Vreceiver

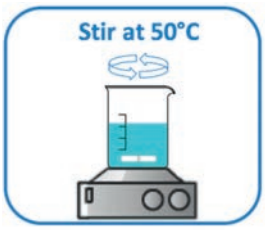
During the Kjeldahl distillation process, the ammonia content is condensed and collected in a boric acid solution to avoid loss of gaseous NH_3. VELP unique Vreceiver™ is a certified formula composed of Boric Acid powder and a mixture of indicators mentioned by AOAC methods (Bromocresol green and Methyl red). It allows fast and standardized receiving solution preparation for colorimetric titration.

Vreceiver TKN formula for 1L, 10 pcs/pack	A00000411

How to prepare 1L boric acid solution with indicators

1

2



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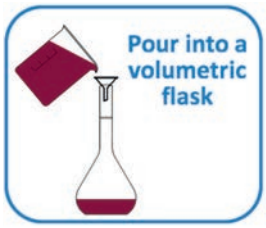
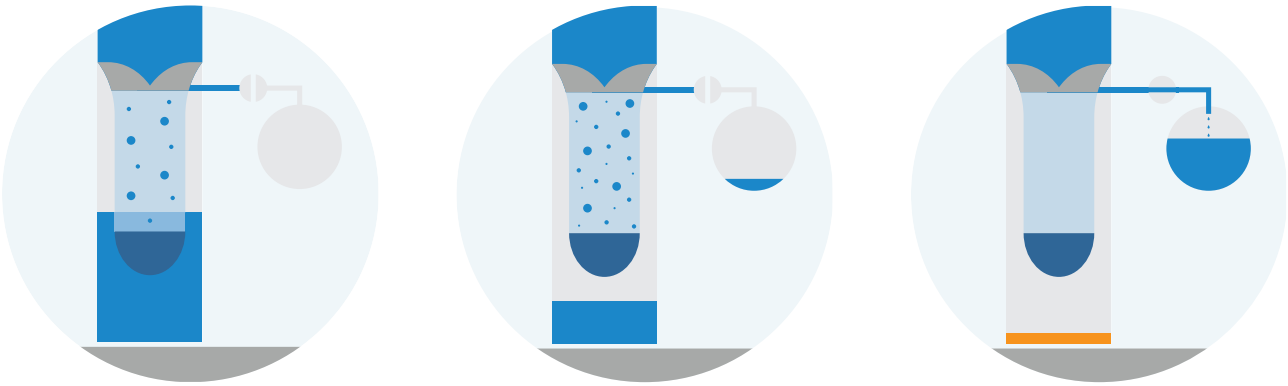


6

Solvent Extraction

Solid - Liquid Solvent extraction

Solvent extraction is a method for the separation of mixtures by using the differences in the solubility of the components. A sample is immersed in a solvent, then it is washed off with fresh solvent and the extract collected.



1 IMMERSION

The sample is immersed in boiling solvent for an effective defatting action.

2 WASHING

The condensed solvent flows over the sample and through the thimble to complete the extraction process.

3 RECOVERY

More than 90% of the solvent is recovered in the internal recovery tank (SER 158).
The glass cup contains the extracted matter.

Accessories as the extraction thimbles and cups, available in different sizes optimize the cost per analysis by reducing the amount of solvent required. VELP Solvent Extractors work with the majority of solvents thanks to the Vaflon, Viton and Butyl seals.

Industries & Application

FOOD & BEVERAGE
Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Oils, Fats

FEED
Pet food, Forages, Feedstuff, Feed ingredients

AGRICULTURE
Soils, Plants, Fertilizers, Cannabis

ENVIRONMENTAL
Sludges, Sediments, Water, Wastewater

COSMETIC
Creams, Lotions, Powders, Wax stripes

CHEMICAL AND PETROCHEMICAL
Rubber, Plastic, Lubricants, Cellulose nitrates, Oils

TEXTILE
Fabrics, Textile fibers

PULP AND PAPER

Automatic Extraction

SER 158 3/6

Fully automatic and cloud-enabled extractor, available in 3 and 6 positions that guarantees safety, accuracy and precision.
The solid-liquid extraction process removes the soluble components from solids using a liquid solvent in 5 steps.

MINIMUM EXPOSURE TO SOLVENTS
The safe SolventXpress™ technology enables smart solvent dispensing for solvent addition.

SMART AND EASY TO USE
The exclusive 7" ControlPad™ facilitates the set-up and interaction with the extractor.

UNPARALLELED VERSATILITY AND SCALABILITY
SER 158 can work with all sample types and sizes thanks to a wide range of accessories and consumables.

ermes enabled

CONFIGURATIONS - SER 158 Series

SER 158/6

SER 158/3

SER 158/6 without ControlPad

SER 158/3 without ControlPad

INSTRUMENT - CODE

SER 158/3	115-230 V / 50-60 Hz	S303A0390
SER 158/6	115-230 V / 50-60 Hz	S303A0380
SER 158/3 without ControlPad	115-230 V / 50-60 Hz	F303A0390
SER 158/6 without ControlPad	115-230 V / 50-60 Hz	F303A0380

The SER 158 is supplied with Grey butyl seal, Green viton seal, Extraction cup STD Ø 56x120mm, Extraction thimbles holder Ø 33mm, Boiling stones, 30g, Cellulose thimbles 33x80mm, Inlet water tube, Teflon tube Ø 4x6mm, Connection 1/8 NPT - tube 6x4

Semi-automatic Extraction

SER 148 3/6

Solvent extraction system suitable for the separation of a substance or a group of elements from solid and semi-solid samples according to the Randall technique. The SER 148 Series is a semi-automatic solution with no compromises on operator safety (IP55) and solvent consumption.

RAPID ANALYSIS
The fast solubilization enabled by hot solvent determines a considerable reduction of the extraction time.

INCREASED FLEXIBILITY
SER 148 Series can be used with a wide range of sample types and with a variety of solvents.

CONFIGURATIONS - SER 148 Series

SER 148/6

SER 148/3

INSTRUMENT - CODE

SER 148/3	230 V / 50-60 Hz	F30300240
	115 V / 50-60 Hz	F30310240
SER 148/6	230 V / 50-60 Hz	F30300242
	115 V / 50-60 Hz	F30310242

The SER 148 is supplied with Extractions cups, Extraction thimbles 33x80 mm, Extractions thimbles holders, Butyl Seals, Viton Seals, Inlet tube, Heat shield

Hydrolysis Unit

HU 6

The HU 6 performs hydrolysis in complete safety and handles six samples at the same time in order to maximize productivity. Optimum solution for the acid/basic hydrolysis of food and feed samples prior to solvent extraction for total fat analysis, and free the fat molecules.

EXCELLENT THERMAL HOMOGENEITY
The samples are heated in test-tubes in an aluminum heating block.

SAFE HYDROLYSIS
HU 6 is supplied with a vacuum pump which guarantees a premium level of safety thanks to the reduction of acid fumes.

AVOID SAMPLE LOSS
The crucible can be transferred directly to the Solvent Extraction Unit avoiding any possible sample loss.

INSTRUMENT - CODE

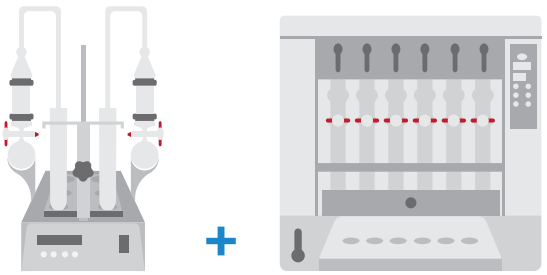
HU 6	230 V / 50-60 Hz	F30300150
	115 V / 50-60 Hz	F30310150

The HU6 includes the following accessories: Glass sand, Celite 545

Sample preparation procedure prior to fat extraction for total fat determination

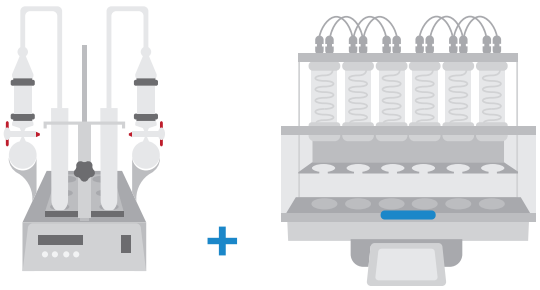
For the majority of food and feed samples, the fats are chemically bonded with other components. In order to determine the total fat for these samples, preliminary hydrolysis followed by filtration and washing is required to free the fat molecules prior to extraction.

The analysis with HU 6 complies with official regulations for the declaration of the total fat content of food and feed samples such as meat, cheese, seafood, chocolate, cereal flours, etc.



HU 6 + SER 148

Use the HU 6 for sample defatting before the extraction with the SER 148 Semi-automatic Solvent Extractor.



HU 6 + SER 158

Use the HU 6 for sample defatting before the extraction with the SER 158 Automatic Solvent Extractor.

Consumables

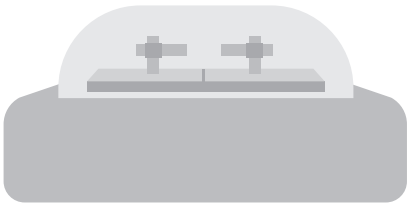
A complete set of cups, thimbles and gaskets guaranteeing maximum performance to solvent extractors. Choose your preferred size of glasses and thimbles as well as gaskets made of high-quality materials that can be adapted to any application, as in the case of the high-quality Vaflon, which is suitable for a very wide range of solvents and solvent mixtures.

Viton seals 3 pcs/box	A00000307
Vaflon seals 3 pcs/box	A00000061
Cellulose thimbles 25x80mm, 25pcs/box	A00000294
Butyl seals 3 pcs/box	A00000308
Cellulose thimbles 33x80mm, 25pcs	A00000295
Cellulose thimbles 40x80mm, 25pcs/box	A00000296
Glass fiber thimbles 25x80mm, 25pcs/box	A00000314
Glass fiber thimbles 33x80mm, 25pcs/box	A00000313
Grey butyl seal 3pcs/box	A00000298
Green viton seal 3pcs/box	A00000297
White vaflon seal 3pcs/box	A00000288
Boiling stones, 30g	A00000305

Oxidation Stability Reactor

The OXITEST Method

The OXITEST Method is an internationally recognized analytical technique for the determination of the oxidation stability of food, fats and oils.
Every food, feed and other product containing lipids (creams, lip balms, body lotions, wax etc.) undergoes oxidation of the contained fat portion, which causes unpleasant flavor, bad smell and the loss of its natural sensorial qualities.
The stability tests performed with the OXITEST reactor accelerate the oxidation process that in normal conditions can last weeks or months and provide fast, accurate and reliable results for Food & Feed, Cosmetic, Pharma and Petrochemical industries.



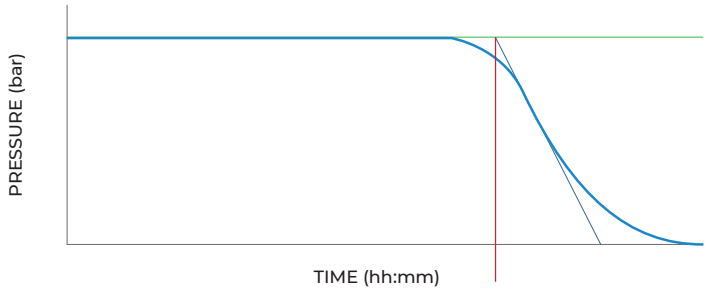
The OXITEST method has been recognized as the AOCS International Standard Procedure:

AOCS Standard Procedure Cd 12c-16

Determination of the Oxidation Stability of Foods, Oils and Fats Using the Oxitest Oxidation Test Reactor

How it works

OXITEST speeds up the oxidation process because of the two accelerating factors, temperature and oxygen pressure. The instrument measures the absolute pressure change inside the two chambers, monitoring the oxygen uptake by reactive components in the sample and automatically generates an IP value.



Results

Induction Period (IP)	14 h 46 min (Graphical method)
Test duration	21 h 00 min
Curve 1	Y = -0,003x + 6,18
Curve 2	Y = - 1,575x + 29,43

The Induction Period (IP) is the time required to reach the starting point of oxidation, corresponding to either a level of detectable rancidity or a sudden change in the rate of oxidation. The longer the Induction Period, the higher the stability against oxidation over time. The operator can create test reports for a single test or compare different analyses for a better interpretation of the data.

Industries & Application

FOOD & BEVERAGE
Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Fats, Oils

FEED
Pet food, Forages, Feedstuff, Feed ingredients

COSMETIC
Creams, Lotions, Powders, Wax stripes

CHEMICAL AND PETROCHEMICAL
Plastic, Lubricants

OXITEST

The OXITEST Oxidation Stability Reactor is the innovative and reliable solution to investigate the oxidation stability of various types of samples, from food and feed to creams and lotions, in just a few minutes. Working on the whole sample, without requiring preliminary fat extraction, the OXITEST enables to create test reports for a single test or compare different analyses thanks to the OXISoft™ software.

REPRESENTATIVE RESULTS
The stability test is performed directly on the sample as it is to provide reliable and reproducible results in a short period of time.

POWERFUL AND INTUITIVE SOFTWARE
OXISoft™ is quick and easy to use. Program parameters, working conditions and results always at a glance.

RESISTANCE AND RELIABILITY
The oxidation chambers, sample holders and covers are made of titanium to guarantee resistance, compatibility, easy cleaning and cost savings.

ermes enabled

INSTRUMENT - CODE

OXITEST	230 V / 50-60 Hz	F30900248
	115 V / 60 Hz	F30910248

OXISoft™ Applications

- **REPEATABILITY TEST**
  A series of tests run on the same sample or standard to verify its IP period and calculate accuracy and repeatability of the data.
- **FRESHNESS TEST**
  To verify the quality of different lots, for example of the same raw material, and compare them.
- **FORMULA COMPARISON**
  To identify the most stable formula of a finished product, under the same conditions.
- **PACKAGING COMPARISON**
  For testing which packaging maintains the product in the freshest condition.
- **IP DURING AGEING**
  To have a prediction of oxidation stability during the shelf life.
- **ESTIMATED SHELF LIFE TEST**
  To have an estimation of the shelf life of the product, extrapolated at room temperature.

Fiber Analyzers

Fiber Determination in Feed Stuff

Crude Fiber (Weende Method)

The crude fiber is a method of analysis based on the estimation of the amount of fiber or plant cell walls. Crude fiber is also known as Weende method and is widely spread for the determination of fiber content for monogastrics.

The method is based on the solubilization (digestion) of non-cellulosic compounds by sulfuric acid and potassium hydroxide solutions. Crude fiber is the loss on ignition of the dried residue remaining after digestion of the sample and is determined by weight difference.

This method is applicable to grains, meals, flours, feeds, and fiber-bearing material from which fat can be extracted to leave workable residue.

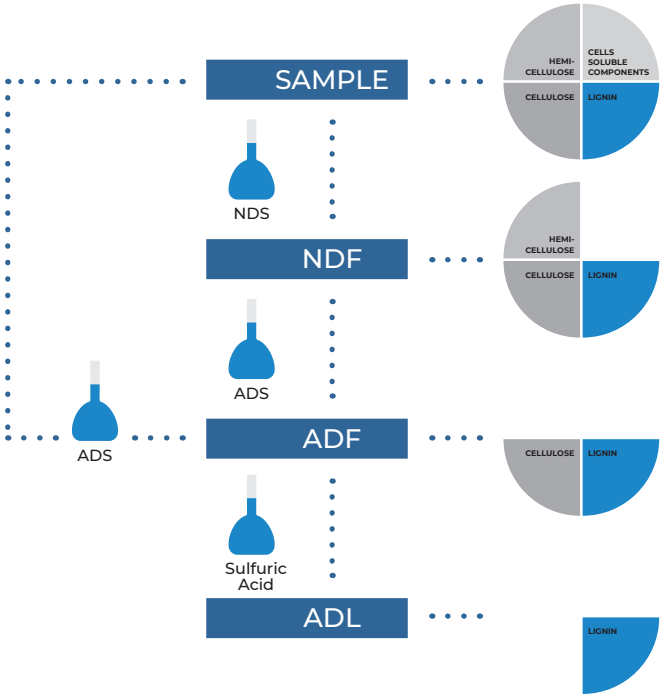
Detergent Fiber (Van Soest Method)

Van Soest method is based on the concept that plant cell can be divided into less digestible cell walls consisting of hemicellulose, cellulose and lignin. As a result it is possible to fraction fiber in NDF, ADF and ADL that are used to estimate the energy intake from feed and particularly for ruminants.

Neutral Detergent Fiber, NDF
The sample is digested in the Neutral Detergent Solution NDS with heat-stable-amylase-treated enzyme to separate the neutral detergent soluble fraction (sugars, starches and pectin soluble, filtered) from the neutral detergent insoluble fraction (cell walls substances, hemicellulose, cellulose and lignin, residues).
The remaining dry matter is estimated and the proportion gives the neutral detergent fiber (NDF).

Acid Detergent Fiber, ADF
The Acid detergent solution (ADS) solubilizes the hemicellulose while lignin and cellulose remain insoluble. The residue is weighed for the determination of ADF. It includes cellulose and lignin.

Acid Detergent Lignin, ADL
The remaining residue from the ADF analysis, is solubilized by 72% sulfuric acid, leaving the lignin (ADL) which is determined gravimetrically.



Industries & Application

AGRICULTURE
Fruits, Vegetables, Tea

FEED
Pet food, Forages, Feedstuff, Feed ingredients, Oil seeds

Automatic Fiber Analyzer

FIWE Advance

The FIWE Advance automates the digestion, washing and filtration steps guaranteeing consistency with Weende Method and Van Soest Method. The fully automatic analyzer for crude and detergent fiber determination requiring minimum operator time with unique user interface and cloud connectivity.

FULL AUTOMATION
FIWE Advance pre-heats, dispenses and collects hot chemicals automatically.

IMPROVED LAB PRODUCTIVITY
FIWE advance requires only 2 minutes for manual operations, saving valuable time and reducing costs.

SMART AND EASY TO USE
The 7-inch touchscreen display and the User Interface make operations
simple and smart.

ermes enabled

INSTRUMENT - CODE

FIWE Advance	230 V / 50-60 Hz	F30500500

The FIWE Advance includes the following accessories: Pincer for test tubes Glass crucible P2, 6pcs/box and Calibration pump device

Premium technology

Fiber determination with the FIWE Advance is absolutely safe. All the reagents required are contained in dedicated glass tanks and bottles located inside the instrument.

The VELP Nozzle automatically despenses the reagents into each column

The 7" LCD touch display and VELP User Interface ensure smart operations

Multiple USB port and LAN to connect the balance, Wi-Fi Adapter, Barcode scanner

Bright LED illumination of the active positions

Advanced filtration system ensuring consistency and repeatabilty

The trasparent tanks enable an immediate visualization of the reagents level

Semi-automatic Extractor

FIWE 3/6

Fiber Analyzers that use pre-heated reagents for fiber analysis according to Weende, Van Soest and other official methods. Rapid analysis, reliable results and high reproducibility are some of the most relevant benefits. Instrument available in 3 or 6 positions.

NO SAMPLE TRANSFER
prevent any possible sample loss, as crucibles can also be used as sample vessels during weighing, drying and washing.

RAPID HEATING ELEMENT
An extremely efficient heating element and pre-heated reagents, speed up the analysis.

HIGH RELIABILITY
Perform single or multiple extractions with the maximum reproducibility available.

CONFIGURATIONS - FIWE Series

FIWE 6

FIWE 3

INSTRUMENT - CODE

FIWE 3	230 V / 50 Hz	SA30520201
	230 V / 60 Hz	SA30530201
	115 V / 60 Hz	SA30540201
FIWE 6	230 V / 50 Hz	SA30520200
	230 V / 60 Hz	SA30530200
	115 V / 60 Hz	SA30540200

The FIWE includes the following accessories: RC Series Hot Plate, Pincer for test tubes and Glass crucible P2, 6pcs/box

Cold Extractor

COEX

The COEX guarantees maximum reliability and is a mandatory step for all the samples with high fat content. Cold extractor that performs rapid preliminary fat extraction on feed samples directly in the FIWE Advance and FIWE glass crucibles.

EASY TO USE AND CONVENIENT
All the reagents can be added through the same channel directly on the sample.

AVOID SAMPLE LOSS
The crucible containing the defatted sample is transferred directly to the FIWE and FIWE Advance analyzers.

HIGHLY EFFICIENT PUMP
The pump aspirates and removes the fatty component, collected in a dedicated waste tank.

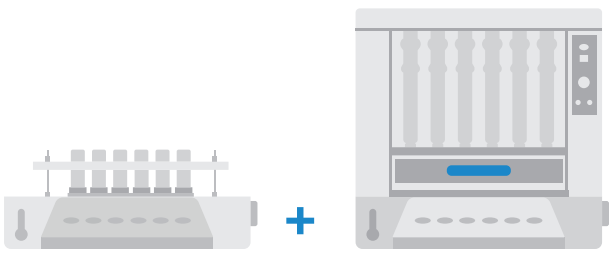
INSTRUMENT - CODE

COEX	230 V / 50 Hz	F30520204
	230 V / 60 Hz	F30530204
	115 V / 60 Hz	F30540204

The COEX includes the following accessories: Glass crucible P2, 6pcs/box

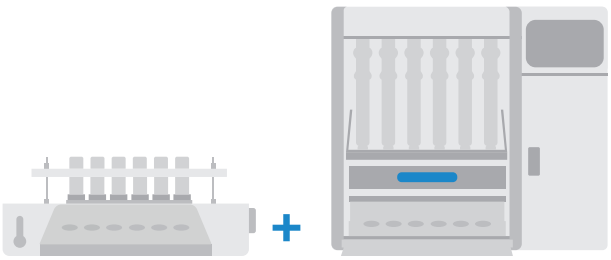
Preliminary fat extraction procedure

If the fatty matter content is between 5 and 10%, extraction is recommended, but if it is more than 10% extraction is mandatory. With the COEX, the fat extraction on feed samples is performed using the FIWE Advance or FIWE glass crucibles, avoiding any possible loss of sample during transfer.



COEX + FIWE

Use the COEX for sample defatting before the extraction with the FIWE Semi-automatic Fiber Extractor.



COEX + FIWE ADVANCE

Use the COEX for sample defatting before the analysis with the FIWE Advance Fully Automatic Fiber Analyzer.

Dietary Fiber Analyzers

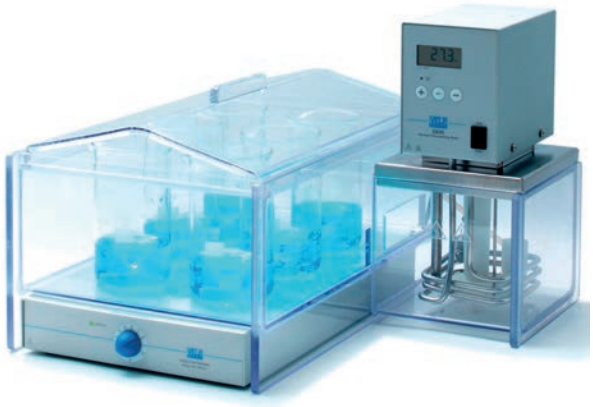
GDE

Enzymatic digestion for dietary fiber analysis by enzymes heating. The analytical procedure for the determination of dietary fiber involves a series of digestions of the sample by thermostable enzymes in accordance with the official method.

RELIABLE AND ACCURATE
The multiposition magnetic stirrer ensures homogeneity thanks to a continuous and constant stirring.

TEMPERATURE REGULATION
Through an intuitive digital display, it is possible to set the desired temperature with excellent accuracy.

TOTAL VISIBILITY
The transparent polycarbonate tank ensures visibility of the whole process.



INSTRUMENT - CODE

GDE	230 V / 50-60 Hz	SA30400209
	115 V / 50-60 Hz	SA30410209

CSF6

Filtration unit for dietary fiber extraction. CSF6 is optimal for efficient filtration, after the samples have been processed with the Enzymatic Digester GDE.

RAPID
This VELP solution allows a drastic reduction in the time required compared to the manual procedure.

EFFICIENT
CSF6 is able to perform filtration on single or multiple samples at the same time in less than 20 minutes.

RELIABLE
The highly efficient pump enables to speed-up the filtration step and the final washing.

INSTRUMENT - CODE

CSF6	230 V / 50 Hz	F30420210
	230 V / 60 Hz	F30430210
	115 V / 60 Hz	F30440210

The CSF6 includes the following accessories: Glass crucible P2, 6pcs/box

Industries & Application

FOOD & BEVERAGE
Cereals, Food ingredients, Bakery products

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