

LABSOLUTIONS

ENVIRONMENT LINE

CHEMICAL OXYGEN  
DEMAND (COD)

BIOCHEMICAL OXYGEN  
DEMAND (BOD)

INCUBATORS

NITROGEN  
DETERMINATION

FLOCCULATORS

OVERHEAD  
MIXER

TRACE METALS  
DETERMINATION

TURBIDIMETER

RADIATION  
DETECTOR

**VELP**  
SCIENTIFICA

# CHEMICAL OXYGEN DEMAND (COD)

## ECO SERIES

### WHAT IS COD?

The pollution caused by organic and inorganic substances in water can be evaluated using a parameter called COD. COD stands for Chemical Oxygen Demand and refers to the oxygen used during the oxidation of substances dissolved and suspended in water. By determining the COD it is possible to determine the quantity of chemically oxidizable substances with energy oxidants such as potassium dichromate present in a strongly acidic solution. The acid environment is created by the addition of concentrated sulfuric acid. Both inorganic compounds and organic substances can be oxidized. This method can also be used to determine the quantity of organic substances such as cellulose, that may not be detected by the equivalent biological method (BOD, Biochemical Oxygen Demand).

#### THERMOREACTION OF A SAMPLE

Digestion is an extremely important step in many chemical reactions. The aim is to convert low-solubility compounds or substances present in the form of aggregates into soluble compounds in order to degrade organic substances into inorganic molecules, or to eliminate interfering substances and solubilize metallic ions. Digestion takes place by adding decomposition reagents to the sample which is then heated.

VELP Scientifica **ECO** thermoreactors are suitable for COD analysis and for sample preparation in order to determine both metallic and non-metallic elements in organic and inorganic materials such as minerals, alloys, animal feeds, soils, sediments and organic tissues. A typical COD analysis will take 2 hours at 150 °C, however the VELP ECO Series can perform **COD analysis in only 30 minutes** thanks to the higher temperature of 160 °C. The aluminum heating block offers **optimum thermal conditions** and a **high level of homogeneity** at all temperatures.

The ECO- series thermoreactors are also suitable for determining total organic carbon (TOC), total chromium, total nitrogen and total phosphate and ensure **excellent accuracy** and **repeatability**.

**GLP** Good Laboratory Practice

EPA • ISO • APHA • AWWA • WEF

## ECO 6

The **ECO 6** is designed to process 6 samples (200 ml test tubes, Ø 42 mm) simultaneously. Electronic temperature control ensures temperature regulation from ambient to **200 °C** and the analysis time can be set from **1 to 199 minutes** or **continuous**. An LED display shows the temperature and time remaining. Dedicated adapters are available for different sizes and quantities of test tubes making the ECO 6 an **extremely flexible** and versatile instrument: 6 Ø 42 mm test tubes; 6 Ø 22 mm test tubes or 18 Ø 16 mm test tubes.

INSTRUMENT	POWER SUPPLY	CODE No
ECO 6	230 V / 50-60 Hz	F10100120
ECO 6	115 V / 50-60 Hz	F10110120



## ECO 16

The **ECO 16** can be used to process 14 Ø 16 mm test tubes plus 2 Ø 22 mm test tubes simultaneously. Electronic temperature control ensures temperature regulation from ambient to **160 °C** and the analysis time can be set from **1 to 199 minutes** or **continuous**. A LED display shows the temperature and time remaining. An acoustic signal indicates the end of analysis and the instrument switches off automatically. For **increased safety** and **reliability** a safety shield is available.

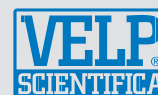
INSTRUMENT	POWER SUPPLY	CODE No
ECO 16	230 V / 50-60 Hz	F10100126
ECO 16	115 V / 50-60 Hz	F10110126

### OPTIONAL ACCESSORIES FOR SLUDGE ANALYSIS CODE No

Test tube for sample decomposition Ø 22 mm, NS 19/26 cone with glass cap	<b>CA0091666</b>
Condenser 200 mm type KS with 3 meters polyethylene tube	<b>CA0091667</b>
Absorption attachment for condenser NS 29/32	<b>1000002</b>



## ECO 8 AND ECO 25



The **ECO 8** can process 8 samples in Ø 16 mm test tubes plus 1 sample in a Ø 22 mm test tube simultaneously, the **ECO 25** 25 samples in Ø 16 mm test tubes. Both instruments come complete with a test tube cover for **increased safety** and **reliability**. Five **different temperatures** (70, 100, 120, 150 and 160 °C) and four **analysis times** (30, 60, 90 minutes or in continuous) can be set. An acoustic signal indicates the end of analysis and the instrument switches off automatically.

INSTRUMENT	POWER SUPPLY	CODE No
ECO 8	230-115 V / 50-60 Hz	F101A0127
ECO 25	230-115 V / 50-60 Hz	F101A0125

### ECO 8 only

### OPTIONAL ACCESSORIES FOR SLUDGE ANALYSIS CODE No

Test tube for sample decomposition Ø 22 mm, NS 19/26 cone with glass cap	<b>CA0091666</b>
Condenser 200 mm type KS with 3 meters polyethylene tube	<b>CA0091667</b>
Absorption attachment for condenser NS 29/32	<b>1000002</b>



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GENERAL FEATURES AND PERFORMANCE

	<b>ECO 6</b>	<b>ECO 8</b>	<b>ECO 16</b>	<b>ECO 25</b>
NUMBER OF POSITIONS	6 (Ø 42 mm) as standard, 6 (Ø 22 mm) or 18 (Ø 16 mm)	8 (Ø 16 mm) + 1 (Ø 22 mm)	14 (Ø 16 mm) + 2 (Ø 22 mm)	25 (Ø 16 mm)
TEMPERATURE REGULATION °C	from ambient to 200	70, 100, 120, 150 and 160	from ambient to 160	70, 100, 120, 150 and 160
TIME SETTINGS min.	0÷199 or continuous	30, 60, 120 or continuous	0÷199 or continuous	30, 60, 120 or continuous
STABILITY AND HOMOGENEITY OF HEATING BLOCK TEMPERATURE °C	± 0.5	± 0.5	± 0.5	± 0.5
SIGNALS:				
TEMPERATURE REACHED	visual	acoustic and visual	visual	acoustic and visual
ANALYSIS TIME	visual	visual	visual	visual
END OF CYCLE	acoustic and visual	acoustic and visual	acoustic and visual	acoustic and visual
DAMAGED PROBE	acoustic and visual	acoustic and visual	acoustic and visual	acoustic and visual
OVERTEMPERATURE	acoustic and visual	acoustic and visual	acoustic and visual	acoustic and visual
DIMENSIONS (VxHxD) mm (in)	198x132x319 (7.8x5.2x12.6)	135x95x230 (5.3x3.7x9.1)	168x110x269 (6.6x4.3x10.6)	155x95x275 (6.1x3.7x10.8)
WEIGHT Kg (lb)	5.6 (12.3)	2 (4.4)	3.6 (7.9)	3.8 (8.4)
POWER SUPPLY	115 or 230 V	230-115 V	115 or 230 V	230-115 V
POWER	700 W	140 W	550 W	400 W

### OPERATING ACCESSORIES

### CODE No

ECO 6 COD test tubes Ø 42x200 mm, 200 ml with cone NS 29/32, 3 pcs/box	<b>A0000145</b>
ECO 6 Sample rack for 6 test tubes Ø 42 mm	<b>A00001043</b>
ECO 6 Air condenser with ground cone	<b>A00001041</b>
ECO 6 Antisplash bell	<b>A00001045</b>
ECO 6 PTFE sheath for 29/32 cones	<b>A00001042</b>

### OPTIONAL ACCESSORIES

### CODE No

ECO 6 Anticorrosal reducer Ø 42 mm with 3 holes Ø16 mm	<b>A00001044</b>
ECO 6 Anticorrosal reducer Ø 42 mm with 1 hole Ø22 mm	<b>A00001046</b>
ECO 8/ECO 16/ECO 25 Set of 20 test tubes with Ø 16 mm	<b>CM0091680</b>
ECO 8/ECO 16/ECO 25 Holder for 12 round glass cells	<b>CA0091636</b>
ECO 16 Safety shield	<b>A00001051</b>
ECO 25 Test tube extractor	<b>A00001039</b>

# BIOCHEMICAL OXYGEN DEMAND (BOD)

## WHAT IS BOD?

BOD (Biochemical Oxygen Demand) is a chemical procedure for determining the amount of dissolved oxygen consumed by aerobic biological microorganisms in water.

The analysis is carried out on a given water sample at certain temperature over a specific period.

The results are most commonly expressed in milligrams of oxygen consumed per liter of sample at a constant temperature of 20 °C over a 5 day incubation period ( $BOD_5$ ), or during complete oxidation obtained after a maximum period of 30 days ( $BOD_{ultimate}$ ).

BOD determination is widely used as an indication of the organic quality of water and the degree of organic pollution of water.

### BOD ANALYSIS

In conformity with International safety regulations for safeguarding workers and the environment, VELP Scientifica has developed an innovative ecological (mercury-free) system for BOD determination using a microprocessor and manometric technology.

Different solutions are available to suit different needs.

### BOD CONTROL TESTS

Water quality analysis calls for systematic research using instruments of guaranteed accuracy and precision.

VELP offers two accessories to test the accuracy of BOD instruments:

- **BOD Sensor Check** (Code No A00000135); performs a quick test to check if the BOD Sensor is operating properly.
- **Control Test Tablets** (Code No A00000136); check both the correct functioning of the system and the calibration of the pressure sensor through a 5-day test.

GLP Good Laboratory Practice

EPA • APHA • AWWA • WEF

## BMS 6

The **BMS 6** for BOD determination uses the traditional manometric technique for concentrations of up to 1000 mg/l (ppm); higher concentrations must be diluted before analysis.

The instrument houses 6 bottles each with manometer and 4 scales for concentrations of up to 90, 250, 600 and 999 ppm BOD.

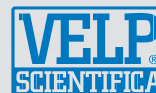
The 500ml bottle can take sample quantities of from 100 to 400 ml.

The 6-position magnetic stirrer incorporated in the base of the instrument ensures **continuous stirring** of the samples.

INSTRUMENT	POWER SUPPLY	CODE No
BMS 6	230 V / 50 Hz	F10220131
BMS 6	230 V / 60 Hz	F10230131
BMS 6	115 V / 60 Hz	F10240131



# BOD SENSOR AND BOD SENSOR SYSTEM



The **BOD Sensor Set** is a ready-to-use solution consisting of a BOD Sensor, a dark glass bottle, an alkali holder to absorb the carbon dioxide and a stirring bar.

This simple configuration was designed to meet the demands of those laboratories that carry out **individual BOD analysis only**.

The BOD Sensor Set is designed for use with the VELP MST (Code No. F203A0440) and MST Digital (Code No. F203A0450) magnetic stirrers.

It can also come as a package in the **BOD Sensor System 6 or 10** configuration, including a 6- or 10-position stirring station with BOD Sensors, dark glass bottles, alkali holders for absorbing the carbon dioxide and stirring bars.

The **6-position Stirring Station** is extremely **simple to handle** and the VELP stirring quality is guaranteed. The **space saving footprint** means that up to 5 stirring stations for a total of 30 samples can be placed in a VELP incubator (FOC 215E) simultaneously.

Measurement is available on 4 different scales - 90, 250, 600 and 999 ppm BOD. Higher values can be measured by diluting the sample.

INSTRUMENT	POWER SUPPLY	CODE No
BOD Sensor	-	F102B0133
BOD Sensor Set	-	F102B0134
BOD Sensor System 6	230 V / 50 Hz	S10220136
BOD Sensor System 6	230 V / 60 Hz	S10230136
BOD Sensor System 6	115 V / 60 Hz	S10240136
BOD Sensor System 10	230 V / 50 Hz	S10220137
BOD Sensor System 10	230 V / 60 Hz	S10230137
BOD Sensor System 10	115 V / 60 Hz	S10240137



The **BOD Sensor** is the **mercury-free** and **reliable** solution for BOD determination.

**Easy to handle, quick and easy to read.** A microprocessor-controlled pressure transducer transfers the BOD value directly to the display: results are displayed **directly in mg/l** with **no need for further calculation** and are stored automatically in the BOD Sensor. Manufactured with premium materials, it automatically stores 5 BOD measurements at 24-hour intervals meaning that analysis can continue over the weekend.

The **BOD value** can also be obtained directly from the **display at any time**, even after five days.



# BOD EVO SENSOR SYSTEM 6

The **BOD EVO Sensor** is the **unique** and **revolutionary wireless sensor**, able to transfer data to the dedicated software **BODSoft™**.

**Mercury-free and intuitive**, BOD EVO Sensor ensures an **outstanding reliability** as there is **no need to open the door of the incubator** thus eliminating the risk of internal temperature variations.

BOD EVO Sensor has an **extremely compact** profile and is **easy to handle**. The sensor measures the BOD value **directly in mg/l** with no need of further calculation and the results are immediately sent to the PC. Real time monitoring on the sensor display is still possible.

Manufactured using the most modern and advanced construction techniques, the BOD EVO Sensor fits directly on the bottle containing the sample.

Measurement is available on 4 different scales - 90, 250, 600 and 999 ppm BOD. Higher values can be measured by diluting the sample.

It comes as a package in the **BOD EVO Sensor System 6** configuration, including the 6-position stirring station with BOD EVO Sensors, dark glass bottles, alkali holders for absorbing carbon dioxide and stirring bars.

The **Stirring Station** is extremely **simple to handle** and the VELP stirring quality is guaranteed. The **space saving footprint** means that up to 5 stirring stations for a total of 30 samples can be placed in a VELP incubator (FOC 215E) simultaneously.

## INSTRUMENT

## POWER SUPPLY

## CODE No

BOD EVO Sensor System 6	230 V / 50 Hz	S10220156
BOD EVO Sensor System 6	230 V / 60 Hz	S10230156
BOD EVO Sensor System 6	115 V / 60 Hz	S10240156
BOD EVO Sensor System 6*	230 V / 50 Hz	S10220146
BOD EVO Sensor System 6*	230 V / 60 Hz	S10230146
BOD EVO Sensor System 6*	115 V / 60 Hz	S10240146

\* including BOD Wireless Databox™, BODSoft™ and cable



**BOD EVO** transfers the BOD value to the **BOD Wireless Databox™** automatically.

The results are shown through the user friendly **BODSoft™**.

An innovative solution to simplify BOD investigations!



# BOD Wireless DataBox™

The **exclusive wireless data transmission** from the BOD EVO Sensor to the **BOD Wireless DataBox™** can be set at selected intervals ranging from 30 minutes to 24 hours in the case of BOD<sub>5</sub> (5-day test); for longer analyses the sampling time period range goes from 2 to 24 hours. The BOD EVO Sensor automatically stores the most recent values. Data transmission is ensured even when the BOD Wireless DataBox™ is not connected to the PC. The BOD Wireless DataBox™ can store unlimited results for up to 80 samples.



# BODSoft™



The **BODSoft™** is **extremely intuitive** and **easy to use** right from the start.

## 1...BEFORE AND DURING THE ANALYSIS

All the most important info is **clearly displayed** during analysis, including the status of the sensor battery. An **unlimited database** shows all the completed and active analyses, with a **real time graph**.

## 2...AFTER THE ANALYSIS

At the end of the analysis, **customized test reports** can be created along with **results comparison**. Results are stored into databases and can be exported in .xls, .txt and .csv format to PC or LIMS.



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GENERAL FEATURES AND PERFORMANCE

	Traditional with mercury	Innovative, mercury-free manometric with pressure sensor			
	<b>BMS 6</b>	<b>BOD Sensor Set</b>	<b>BOD Sensor System 6 and 10</b>		<b>BOD EVO Sensor System 6</b>
REAL TIME DATA READING mg/l (ppm)	On board	On display	On display		On display
PC DATA READING mg/l (ppm)					•
DATA STORAGE		Every 24 hours	Every 24 hours		Every 30 min / 1/2/4/6/8/12/24 hours
BOD <sub>5</sub>	-	-	-		Every 2 / 4 / 6 / 8 / 12 / 24 hours
BOD <sub>ultimate</sub>	-	-	-		90, 250, 600, 999
SCALES	ppm BOD	90, 250, 600, 999	90, 250, 600, 999		90, 250, 600, 999
SUPPLIED WITH	SENSOR	1	6	10	6 EVO
DARK GLASS BOTTLE	6	1	6	10	6
ALKALI HOLDER	6	1	6	10	6
STIRRING BAR	6	1	6	10	6
STIRRING STATION	6-place	-	6-place	10-place	6-place
DIMENSIONS (WxHxD) mm	350x360x210	75x230x75	270x300x175	432x300x165	270x300x175
(in)	(13.8x14.2x8.3)	(3.0x9.3x3.0)	(10.6x11.8x7.3)	(17.0x11.8x6.5)	(10.6x11.8x7.3)
WEIGHT Kg (lb)	7 (15.4)	0.4 (0.9)	2.3 (5.1)	3 (6.6)	2.3 (5.1)
POWER SUPPLY	115 or 230 V	-	115 or 230 V	115 or 230 V	115 or 230 V
POWER	2 W	2x3 V batteries	2 W	2 W	2 W

### OPTIONAL ACCESSORIES

### CODE No

BOD Sensor Check	A0000135 *
Control Test Tablets, 8 pcs/box	A0000136

### OPTIONAL ACCESSORIES

### CODE No

Multi-socket extension cable	A0000221
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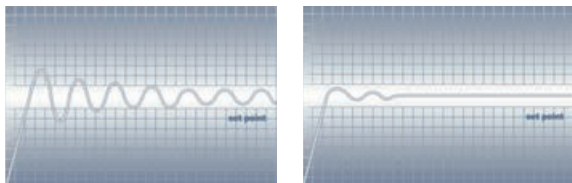
\* for BOD Sensor Set, BOD Sensor Systems 6 and 10 and BOD EVO Sensor System 6

# INCUBATORS

TEMPSoft™



For those applications where the monitoring of the sample is extremely important, VELP has developed a line of incubators that offer the possibility of visually examining the contents without interfering with the thermal cycle in progress.



**CFC**Free

**GLP** Good Laboratory Practice

Thanks to the **Auto-Tuning thermoregulation system**, VELP Scientifica refrigerated thermostats and incubators ensure **optimum thermal homogeneity** and **stability** at any temperature. The internal temperature is constantly controlled by the software, which continuously compares the detected and set values and aligns them with a **precise and rapid alignment system** developed by VELP.

With the innovative VELP **TEMPSoft™** the user can constantly **control and manage the temperature** of the incubator, through the wireless interface.

- Many aspects can be monitored, related to the temperature:
- Control the set point, and setting minimum and maximum temperature alarm thresholds;
  - Instantly view the trend of the internal temperature on a graph;
  - Automatically record the temperature trend on a spreadsheet;
  - Set working ramps with different temperatures and times;
  - View and record any alarms;
  - Store test data in conformity with GLP.

Data are sent to the Wireless DataBox™ and stored by the software. TEMPSoft™ can be used with the FOC Series.



## FTC 120

The **FTC 120** is a medium-size refrigerated thermostat specially designed for incubating BOD measurement units. The BOD measurement unit is powered thanks to two internal sockets and samples are incubated at a **constant temperature** of 20 °C (up to three BOD Sensor System 6 or two BOD Sensor System 10 simultaneously). Forced air circulation ensures a **uniform temperature** inside the incubation chamber. The internal temperature can be constantly monitored through the 2-digit display.

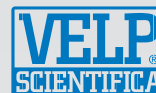
The cooling system in **class A+** ensures top performance with minimum power consumption.

INSTRUMENT	POWER SUPPLY	CODE No
FTC 120	230 V / 50-60 Hz	F10300300





# FOC 120E, FOC 215E FOC 120I AND FOC 215I



The **FOC Series** are equipped with the innovative **Auto-Tuning thermoregulation system** for an excellent **stability, homogeneity and uniformity** of the internal temperature. Temperature can be set from 3 to 50 °C, and monitored through the 3-digit display. In addition to these features, **FOC 120I** and **FOC 215I** offer a **transparent internal door** for visual examination of the contents.

The two internal sockets are controlled by an external switch and can be used for the electrical connection of instruments that need to be incubated, including BOD System.

The **maximum capacity** of FOC 120E is up to three BOD Sensor System 6 or two BOD Sensor System 10 simultaneously, whilst for FOC 215E is up to five BOD Sensor System 6 or three BOD Sensor System 10 simultaneously. Due to the internal transparent door, the maximum capacity of the “I versions” is one unit less than the “E versions”.

The entire FOC Series can also be connected to a PC using **wireless technology** and be controlled by the dedicated software **TEMPSoft™**.

The cooling system in **class A+** ensures top performance with minimum power consumption.

INSTRUMENT	POWER SUPPLY	CODE No
FOC 120E	230 V / 50-60 Hz	F10300310
FOC 215E	230 V / 50-60 Hz	F10300330
FOC 120I	230 V / 50-60 Hz	F10400320
FOC 215I	230 V / 50-60 Hz	F10400340



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GENERAL FEATURES AND PERFORMANCE

	FOC 120	FOC 120E	FOC 120I	FOC 215E	FOC 215I
TRANSPARENT DOOR			•		•
TEMPERATURE SETTING	20 °C, constant	from 3 to 50 °C	from 3 to 50 °C	from 3 to 50 °C	from 3 to 50 °C
TEMPERATURE STABILITY AND HOMOGENEITY	± 0.5 °C	± 0.5 °C	± 0.5 °C	± 0.5 °C	± 0.5 °C
ELECTRONIC THERMOREGULATION SYSTEM	Traditional	Auto-Tuning	Auto-Tuning	Auto-Tuning	Auto-Tuning
MAXIMUM CAPACITY (IN TERMS OF BOD SYSTEMS)	3 BOD SYSTEM 6 or 2 BOD SYSTEM 10	3 BOD SYSTEM 6 or 2 BOD SYSTEM 10	2 BOD SYSTEM 6 or 1 BOD SYSTEM 10	5 BOD SYSTEM 6 or 3 BOD SYSTEM 10	4 BOD SYSTEM 6 or 2 BOD SYSTEM 10
WIRELESS INTERFACE FOR TEMPSoft™		•	•	•	•
NUMBER OF SHELVES SUPPLIED	2	2	2	4	4
DIMENSIONS (WxHxD) mm (in)	540x912x650 (21.3x35.9x21.7)	540x912x650 (21.3x35.9x21.7)	540x912x650 (21.3x35.9x21.7)	540x1263x650 (21.3x49.7x21.7)	540x1263x650 (21.3x49.7x21.7)
WEIGHT Kg (lb)	36 (79.4)	36 (79.4)	36 (79.4)	46.3 (102.1)	46.3 (102.1)
POWER SUPPLY	230 V	230 V	230 V	230 V	230 V
POWER	120 W	120 W	120 W	400 W	400 W

## SUPPLIED WITH

## CODE No

Bottom shelf	10005522
Shelf	10005523

## OPTIONAL ACCESSORIES

## CODE No

TEMPSoft™ *	A00000244 *
IQ/OQ Manual	A00000239
Multi-socket extension cable	A00000221

\* including Wireless DataBox™ and cable

## FOC 215IL ILLUMINATED INCUBATOR

The **FOC 215IL** is a **multi-function incubator**, applicable to bacteria cultures and fermentation studies, among many other experiments which require constant temperature and lighting.

**Light exposure** is made by six lines, horizontally mounted on the lower part of each shelf, which illuminate the shelf below.

A dedicated **timer** for the internal lighting enables unattended operation and let you create several operating cycles, with automatic switch off and on.

**Auto-Tuning thermoregulation system** ensures the most reproducible test conditions. The chamber air is gently and continuously circulated at a rate that ensures temperature uniformity of all test samples.

The **internal transparent door** facilitate real-time observation of the incubated samples.

The cooling system in **class A+** ensures top performance with minimum power consumption.



## NITROGEN DETERMINATION

### DKL SERIES AND DK SERIES AUTOMATIC DIGESTION UNITS

The fully **automated DKL Series** digester system consists of an aluminum heating block offering **excellent temperature homogeneity, precision and accuracy**; an auto lift and an auto suction cap are supplied as a complete package including test tubes, sample rack and drip tray.

The DKL Series incorporates VELP's revolutionary **TEMS™ technology** for **unprecedented savings** in terms of **Time, Energy** - as much as 35%, **Money and Space**.

**DK Series** digesters perform Kjeldahl analysis using traditional methods (with no automation).



INSTRUMENT	POWER SUPPLY	CODE No
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FOC215IL	230V/50-60Hz	F10400290
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INSTRUMENT	POWER SUPPLY	CODE No
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DKL 8 *	230 V / 50-60 Hz	S30100200
DKL 8 *	115 V / 50-60 Hz	S30110200
DKL 12 *	230 V / 50-60 Hz	S30100190
DKL 12 *	115 V / 50-60 Hz	S30110190
DKL 20 *	230 V / 50-60 Hz	S30100210
DKL 42/26 *	230 V / 50-60 Hz	S30100180

\* DKL Series comes including lift, suction cap, sample rack and test tubes

INSTRUMENT	POWER SUPPLY	CODE No
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DK 6	230 V / 50-60 Hz	F30100182
DK 6	115 V / 50-60 Hz	F30110182
DK 6/48	230 V / 50-60 Hz	F30100188
DK 6/48	115 V / 50-60 Hz	F30110188
DK 8	230 V / 50-60 Hz	F30100020
DK 8	115 V / 50-60 Hz	F30110020
DK 20	230 V / 50-60 Hz	F30100350
DK 20/26	230 V / 50-60 Hz	F30100185
DK 20/26	115 V / 50-60 Hz	F30110185
DK 42/26	230 V / 50-60 Hz	F30100360

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GENERAL FEATURES  
AND PERFORMANCE

#### FOC 215IL

TRANSPARENT DOOR	•
TEMPERATURE SETTING	from 3 to 50 °C
TEMPERATURE STABILITY AND HOMOGENEITY	± 0.5 °C
ELECTRONIC THERMOREGULATION SYSTEM	Auto-Tuning
LIGHTING SYSTEM	LED
LUMINOUS FLUX	20 000 lux/shelf
WIRELESS INTERFACE FOR TEMPSoft™	•
NUMBER OF SHELVES SUPPLIED	2 with lights; 1 without
DIMENSIONS (WxHxD) mm (in)	540x1300x550 (21.3x51.2x21.7)
WEIGHT Kg (lb)	50 (110.2)
POWER SUPPLY	230 V
POWER	400 W

## UDK DISTILLATION UNITS

VELP Scientifica **UDK** distillation units are the ideal solution for performing analyses concerning different applications such as determining ammoniacal nitrogen, protein nitrogen, (Kjeldahl or direct alkaline distillation), nitric nitrogen (after reduction), phenols, volatile fatty acids, cyanides, alcohol content and Devarda alloy.

VELP Scientifica offers a **wide choice** with its 4-model series for performing efficient and reliable steam distillations, according to the different needs of the users. All the units support the **most advanced technology**, consisting in a **unique patented steam generator** and an **outstanding efficient patent pending titanium condenser** that are wisely combined with a **technopolymer splash head**. Designed with a strong and chemical-resistant structure made of technopolymer, UDK Series has been designed to last in time and to perform reliable analysis for many years. Different **safety features** have been assembled on the units:

- safety lever avoids contact with soiled surfaces
- protective door with sensor shields test tube and prevents spills; completely closed
- service door + automatic electrical shutdown for extraordinary maintenance
- cooling water flow-rate detector activates low flow-rate warning signal
- test tube sensor ensures the presence of the test tube
- drip tray collects any drops

UDK Series supports different sizes of test tubes, from straight tubes (100, 250, 300, 400 ml and 1liter) to Kjeldahl flasks (500 ml).

UDK models have different levels of automation.

The **UDK Series** incorporates **TEMS™ technology** for major savings in **Time, Energy, Money and Space**, pursuing VELP's contribution to environmental protection.

**GLP** Good Laboratory Practice  
EPA • DIN • ASTM • TAPPI



INSTRUMENT	POWER SUPPLY	CODE No
UDK 129	230 V / 50-60 Hz	F30200120
UDK 129	115 V / 50-60 Hz	F30210120
UDK 139	230 V / 50-60 Hz	F30200130
UDK 149	230 V / 50-60 Hz	F30200140
UDK 159	230 V / 50-60 Hz	F30200150



### STEAM GENERATOR **PATENTED**

- Safe Working Conditions
- Non-Pressurized
- Extremely Reliable
- Using Deionized Water

### TECHNOPOLYMER SPLASH HEAD

- Long-Life
- High Chemical Resistance
- No Risk of Breakage
- Maintenance-free and Easy to Replace

### TITANIUM CONDENSER **PATENT PENDING**

- Efficient Thermal Exchange
- Limited Water Consumption
- No Nitrogen Loss, Precise Results
- Minimal Maintenance

### TECHNOPOLYMER HOUSING

- High Durability
- Long-Life
- Space Saving
- Safety Lever, Protective Door and Service Door

# FLOCCULATORS

## JLT 4 AND JLT 6

### FLOCCULATORS

VELP Scientifica has developed a complete line of instruments to support the lab technician working in the environmental sector and for the separation of pollutants in waste-water treatment plants in particular.

#### JAR TEST

The choice and dosage of the chemical coagulant to be adopted for removing suspended solids from waste-water are established based on an evaluation of the results obtained from the Jar Test.

Multiple stirrers with reproducible stirring speeds ensure repeatable and reliable results.

#### LEACHING TEST

This is a test on solid wastes to be sent to the dump that uses diluted acetic acid or carbon dioxide-saturated water to detect the presence of toxic heavy metals.

The **JLT 4** and **JLT 6** are multiple stirrers with **reproducible stirring speeds** allowing standard conditions to be met during analysis, a basic requirement in order to obtain **reliable and repeatable results**.

The highly **versatile** stainless steel stirring shafts offer height adjustment and are fitted with a self-locking device with clutch.

The sample can be **backlit** for **easier reading**.

The instrument has an **ergonomic design** and the control panel is sloped to facilitate **parameter settings** and readings. The rotation speed can be set from 10 to 300 rpm, with 1 rpm intervals, the time remaining can be set in hours or minutes.

UK, AU and USA adapter plugs are available on request.

INSTRUMENT	POWER SUPPLY	CODE No
JLT 4	100÷240 V / 50-60 Hz	F105A0108
JLT 6	100÷240 V / 50-60 Hz	F105A0109



## FP4

The **FP4** is the **portable flocculator** that can be connected to a battery or a car cigarette lighter.

The anti-skid base ensures **stability** whilst the highly versatile stainless steel stirring shafts offer height adjustment and are fitted with a self-locking device with clutch.

The FP4 is particularly suitable for carrying out on-site Jar Tests.

The **carrying case**, an optional accessory, is ideal for storing or transporting the unit.

UK, AU and USA adapter plugs are available on request.

INSTRUMENT	POWER SUPPLY	CODE No
FP4	100÷240 V / 50-60Hz	F105A0117



# FC4S AND FC6S



The **FC4S** and **FC6S** are **highly resistant** to chemical and mechanical aggression and corrosion.

The highly versatile stainless steel stirring shafts offer height adjustment and are fitted with a self-locking device with clutch.

The sample can be **backlit** for **easier reading**.

Motion is transmitted by four (in the case of the FC4S) or six (in the case of the FC6S) direct current gear motors in order to ensure **optimum performance** and **reproducibility** even at low speeds.

With 9 different speed settings for each position the instrument is **totally flexible**; the stirring speed can be set using the selectors on the front panel (10-15-30-45-60-90-120-150-200-300 rpm).

UK, AU and USA adapter plugs are available on request.

INSTRUMENT	POWER SUPPLY	CODE No
FC4S	100÷240 V / 50-60 Hz	F105A0111
FC6S	100÷240 V / 50-60 Hz	F105A0112



GENERAL FEATURES AND PERFORMANCE

	JLT 4	JLT 6	FC4S	FC6S	FP4
NUMBER OF POSITIONS	4	6	4	6	4 (portable)
INDEPENDENT POSITIONS			•	•	
SPEED SETTINGS rpm	from 10 to 300	from 10 to 300	10-15-30-45-60-90-120-150-200-300	10-15-30-45-60-90-120-150-200-300	20-40-50-100-200
TIME SETTINGS	0÷999 min 0÷99 hours continuous	0÷999 min 0÷99 hours continuous	- - continuous	- - continuous	0÷30 min - continuous
LIGHT	disconnectable backlight	disconnectable backlight	disconnectable backlight	disconnectable backlight	disconnectable central light
DIMENSIONS (WxHxD) mm	645x347x260	935x347x260	645x347x260	935x347x260	250x320x250
(in)	(25.4x13.7x10.2)	(36.8x13.7x10.2)	(25.4x13.7x10.2)	(36.8x13.7x10.2)	(9.8x12.6x9.8)
WEIGHT Kg (lb)	13 (28.6)	17 (37.4)	12.5 (27.5)	18 (39.6)	4.8 (10.6)
POWER SUPPLY	100÷240 V	100÷240 V	100÷240 V	100÷240 V	100÷240 V
POWER	11 W	19 W	18 W	23 W	6 W

## JLT 4, JLT 6, FP4, FC4S, FC6S ACCESSORIES

INTERCHANGEABLE PLUGS	CODE No
JLT 4/JLT 6/FC4S/FC6S US plug	10003722
JLT 4/JLT 6/FC4S/FC6S UK plug	10003723
JLT 4/JLT 6/FC4S/FC6S Australian plug	10003724
FP4 US plug	10003083
FP4 UK plug	10003084
FP4 US Australian plug	10003085

OPTIONAL ACCESSORIES	CODE No
Plastic beaker, 1000 ml	A00001000
Glass beaker, 1000 ml	A00001001
Transparent plastic Imhoff cone	A00001002 *
Graduated glass Imhoff cone	A00001003 *
Stand for 2 Imhoff cones	A00001004 *
FP4 Carrying case	A00001005
IQ/OQ Manual JLT	A00000319

\* only for JLT 4, JLT 6, FC4S and FC6S

# OVERHEAD MIXER

## ROTAX 6.8

The **ROTAX 6.8** is purpose-designed and developed to evaluate the solubility in water of pollutants present in sludge, sediments and solid waste. The ROTAX 6.8 is suitable for waste treatment plants, wastewater treatment plants and laboratories involved in environmental analyses.

An **easy to use** instrument with a **digital display** and speed settings ranging from 0 to 30 rpm. **Precise** and **extremely safe**, the ROTAX 6.8 offers **excellent performance**.

INSTRUMENT	POWER SUPPLY	CODE No
ROTAX 6.8	230 V / 50-60 Hz	F10600118
ROTAX 6.8	115 V / 50-60 Hz	F10610118



# TRACE METALS DETERMINATION

## TMD 6

The environmental risk represented by trace metals is due to their toxicity but also to the possible bioconcentration that can reach human beings through the food chain. Monitoring the presence of trace metals in sludge from water treatment plants requires a host of analytical procedures starting from the solubilization of metallic compounds.

The **TMD 6** is designed for the hot digestion of sludge coming from water treatment plants, soil, compost, waste-water or vegetable materials, using "aqua regia" (royal water). Thanks to the use of **water-jacketed condensers** there is no loss of mercury, cadmium, lead, chromium, copper, zinc, etc. during hot mineralization.

The TMD 6 combines with the DK 6 to perform sample digestion.

INSTRUMENT	POWER SUPPLY	CODE No
TMD	-	F107C0146

**GLP** Good Laboratory Practice  
**DIN**



### OPTIONAL ACCESSORIES

### CODE No

Polyethylene bottle, 2-liter capacity	A00001021
Polyethylene bottle, 1-liter capacity	A00001022
Adapter for 8 bottles (1-liter capacity), 2 pcs/box	A00001023
Glass bottle with round glass cap, 2-liter capacity	A00001024

### GENERAL FEATURES AND PERFORMANCE

SAMPLE CAPACITY	6 samples in 2-liter bottles 8 samples in 1-liter bottles *
SPEED OF ROTATION	up to 30 rpm
BOTTLE INFO	2-liter bottle max. diameter: 135 mm height: from 220 to 285 mm 1-liter bottle max. diameter: 110 mm height: from 200 to 275 mm
DIMENSIONS (WxHxD)	665x520x470 mm (26.2x20.5x18.5 in)
WEIGHT	30 kg (66.0 lb)
POWER SUPPLY	115 or 230 V
POWER	100 W

\* adapter required

### SUPPLIED WITH

### CODE No

Test tube Ø 42x300 mm, 250 ml, spherical joint	10000000
Allihn condenser	10000001
Absorption attachment for condenser	10000002

### GENERAL FEATURES AND PERFORMANCE

DIMENSIONS (WxHxD)	225x810x126 mm (8.9x31.9x5.0 in)
WEIGHT	5 kg (11.0 lb)

# TURBIDIMETER

## TB1

Turbidity is one of the most commonly used parameters for determining the quality of water. The turbidity value is an important factor in various fields of application such as drinking water, disinfection processes, industrial processes and water treatment plants. VELP Scientifica has developed a **portable and impermeable** solution.

The portable turbidimeter **TB1** measures the turbidity of aqueous samples simply and accurately results are given directly in Nephelometric Turbidity Units (NTU).

**High quality, intuitive and simple to calibrate**, the TB1 offers **premium results** in a matter of seconds.

The TB1 is supplied with 4 calibration standards (800, 100, 20 and 0.02 NTU), NIST traceable, 3 vials, cloth, silicone oil, batteries and carrying case.

# RADIATION DETECTOR

## RADIATION DETECTOR

The **Radiation Detector** is standard industrial model of a **Geiger-Müller** tube with a thin mica output window.

It is factory-calibrated using a pulse generator and is the standard  $\pm 15\%$  of the full scale relative to Cesium-137.

It offers **reliable results** in milliroentgens/hour and events/minute (cpm) in three different periods. The unit is protected by an **anti-saturation circuit** up to a value equivalent to 100 times the maximum reading in the greatest interval. The radiation detected is indicated by the graduated scale, a blinking LED and an acoustic signal.

INSTRUMENT	POWER SUPPLY	CODE No
TB1	-	R109B12150

INSTRUMENT	POWER SUPPLY	CODE No
RADIATION DETECTOR -	-	R10800340

**GLP** Good Laboratory Practice  
**ISO**



SUPPLIED WITH	CODE No
Calibration set (800, 100, 20 and 0.02 NTU)	CE0012020
Sample vials, 3 pcs/box	CE0012030
Silicone oil, 10 ml	CE0012050

### ① GENERAL FEATURES AND PERFORMANCE

MEASUREMENT RANGE	from 0 to 1000 NTU
ACCURACY	$\pm 2\%$ from 0 to 500 NTU, $\pm 0.5$ from 501 to 1000 NTU
REPEATABILITY	$\pm 0.01$ NTU or $\pm 1\%$ in reading
LIGHT SOURCE	Infrared emitting diode (850 nm wavelength)
PROTECTION RATING	IP67
DIMENSIONS (WxHxD)	68x50x155 mm (2.7x2.0x6.1 in)
WEIGHT	0.2 kg (0.4 lb)
POWER SUPPLY	4x1.5 V alkaline battery

### ① GENERAL FEATURES AND PERFORMANCE

MEASUREMENT RANGE	0.5 - 5.0 - 50 mR/h 500 - 5000 - 50000 CPM 5 - 50 - 500 $\mu$ Sv/h
SENSITIVITY	<b><math>\alpha</math></b> : detected down to 2.5 MeV, with typical detection efficiency greater than 80% at 3.5 MeV <b><math>\beta</math></b> : detected at 150 keV with 75% typical detection efficiency <b>Y AND X RAYS</b> : detected down to 10 keV through the end window and to 40 keV through the case
DIMENSIONS (WxHxD)	75x145x38 mm (2.9x5.7x1.5 in)
WEIGHT	0.25 kg (0.6 lb)
POWER SUPPLY	9 V alkaline battery, 2000-hour lifetime

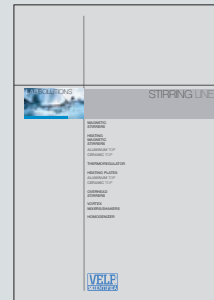


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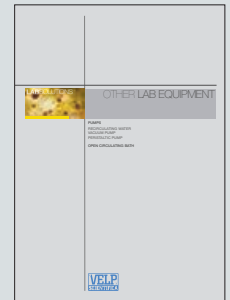
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Rev. 27.07.2018

