FOOD&FEED LINE

NITROGEN/PROTEIN
DETERMINATION

DUMAS/COMBUSTION
METHOD

KJELDAHL
METHOD

SHELF LIFE
INVESTIGATION

FAT
EXTRACTION

RAW FIBER
EXTRACTION

DIETARY FIBER
EXTRACTION

VELP® SCIENTIFICA

FAT EXTRACTION

RANDALL HOT SOLVENT EXTRACTION

Solvent extraction is used to determine the quantity of various components (e.g. Fat) contained in agricoltural, industrial or environmental samples.
Soxhlet extraction, is one of the most widely used analytical technique which performs extraction with cold solvent. Adaptation of Soxhlet have been introduced over time, reducing extraction time by increasing the temperature of the solvent as with the Randall technique.
The solvent extractors of VELP Scientifica operate a solid-liquid extraction process that removes soluble components from solid samples using a liquid solvent according to the Randall technique, offering significant benefits in term of time saving and solvent recovery.
This method is performed in 3 main steps: Immersion, Washing and Recovery although other two intermediate steps, Removing and Cooling, can be added (with the SER 158) in order to maximize the performance.
Hot solvent extraction works in accordance with national and international standards and can be used in various industries and analytical fields.

THE SER SERIES

The fully automatic SER 158 and the semi-automatic SER 148 guarantee safe operations and low solvent consumption for all sort of hot solvent extractions. The VELP extractors come with 3 or 6 positions.

The automatic and semi-automatic SER are fully equipped, versatile and with a complete range of accessories providing total flexibility in all fields of application.

Solvent extraction with the SER series can be performed not only for Fat extraction (crude and total) in food and non-food samples but also for sample preparation for additional test such as Hydrocarbons from soil, Oil in sludge, Paraffin in wood chips, and many more.

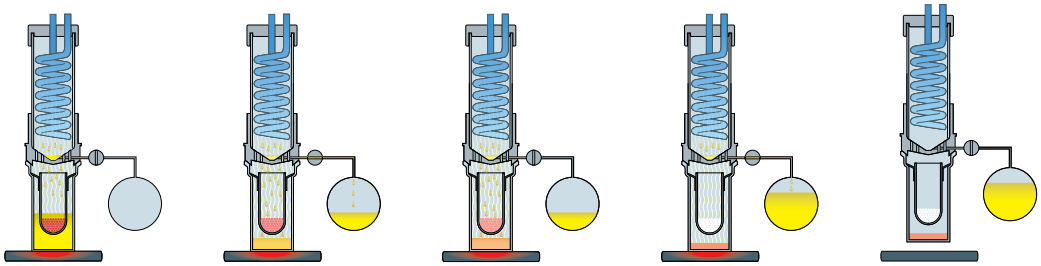
APPLICATIONS:	MAIN INDUSTRIES:
FAT DETERMINATION (CRUDE AND TOTAL)	FOOD AND FEED
OIL/FAT CONTENT DETERMINATION	ENVIRONMENTAL, TEXTILE, PULP & PAPER
SAMPLE PREPARATION FOR THE EXTRACTION OF POLLUTANTS AND CONTAMINATED ELEMENTS	PLASTIC & PETROLEUM, ENVIRONMENTAL

GLP GoodLaboratoryPractice
AOAC • ISO • EPA • APHA • UNI

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.

SER 158 FULLY AUTOMATIC EXTRACTION PROCESS



IMMERSION
The sample is immersed into boiling solvent

REMOVING*
Solvent volume is reduced

WASHING
The solvent flows through the thimble

RECOVERY
Solvent is recovered

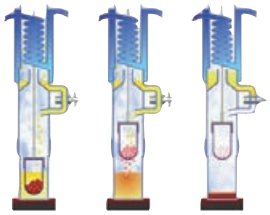
COOLING*
Prevention of extracted matter overheating

*Performed only with the SER 158.

SER 148
SOLVENT EXTRACTOR

The **SER 148/3** and **SER 148/6** can be used to separate a substance or a group of elements (e.g. fat) from solid and semi-solid samples according to the **Randall technique** (consisting of Immersion, Washing and solvent Recovery).
The SER 148 Series is a semi-automatic solution with no compromises on **operator safety (IP55)** and **solvent consumption** also guaranteeing a **limited cost per analysis**.

Robust design and large install base make the SER 148 Series the reliable choice for any laboratory aiming at reducing the time per analysis compared to the traditional Soxhlet method. As for the automatic version, the main field of application is the determination of the content of soluble products such as fats, detergents, plasticizers and pesticides in food, animal feeds, detergents, rubber and plastic formulas, pharmaceutical products, soil.



RANDALL 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 achived by the hot solvent results in a sharp reduction of extraction time.

CONSUMABLES	CODE No
Extraction thimbles 33x80 mm, 25 pcs/box	A00000295

SUPPLIED WITH	CODE No
Extraction Cups SER 148/3	A00001141
Extraction Cups SER 148/6	A00000142
Extraction Thimbles 33X80, 25pcs/box	A00000295
Inlet Tube	10000280
Heat Shield SER 148/3	40000210
Heat Shield SER 148/6	40000220
Viton seal SER 148 3pcs/box	A00000307
Butyl seal SER 148 3pcs/box	A00000308

OPTIONAL ACCESSORIES	CODE No
Printer	A00001009
Serial cable	A00000011
Thimble weighing cup	A00001146
Vaflon seal SER 148 3pcs/box	A00000061
IQ/OQ SER 148 Manual	A00000073
Handling device for extraction cup (for SER 148/6)	A00001145
Pincer for weighing cups (for SER 148/6)	A00001147
Thimbles stand (6 places)	A00001149
Extraction thimbles holder	A00001142
Crucible holder HU6 for SER148	A00000309
Glass fiber thimbles 33x80, 25pcs/box	A00000313
Oat meal, 30g	A00000318

INSTRUMENT	POWER SUPPLY	CODE No
SER 148/3	230 V / 50-60 Hz	F30300240
SER 148/3	115 V / 50-60 Hz	F30310240
SER 148/6	230 V / 50-60 Hz	F30300242
SER 148/6	115 V / 50-60 Hz	F30310242

SER 148/6

SER 148/3

GENERAL FEATURES AND PERFORMANCE

CONSTRUCTION MATERIAL	Epoxy painted stainless steel structure
MAX VOLUME EXTRACTION CUP	150 ml
DISPLAY	Working temperature / settable parameters
WORKING TEMPERATURE	From 100 to 260 °C
IMMERSION, WASHING & RECOVERY TIME	From 0 to 999 minutes
SAMPLE QUANTITY	From 0.5 to 15 g (generally 2-3 g)
SOLVENT RECOVERY	From 50 to 75%
REPRODUCIBILITY (RSD)	≤ 1%
INTERFACE	RS232
POWER	500 W (SER 148/3) or 950 W (SER 148/6)
DIMENSIONS (WxHxD)	480x620x390 mm (18.9x24.4x15.4 in) (SER 148/3) 700x620x390 mm (27.6x24.4x15.4 in) (SER 148/6)
WEIGHT	30 Kg (66 lb) (SER 148/3) 40 Kg (88 lb) (SER 148/6)