

EVO FILTER

DEPTH FILTRATION SYSTEM
FOR EXTRA VIRGIN OLIVE OIL



EVO FILTER

BENEFITS

FILTRATION IN SERIES,
WITH ONE HOUSING
OR IN PARALLEL

EASY
CLEANING

RECOVERY
AND TRANSFER
OF UNFILTERED OIL

SIMPLE MONITORING
OF FILTRATION
QUALITY

HIGH
QUALITY
FILTRATION

REDUCED COSTS
AND FILTRATION
TIMES

EVO Filter results from the completion of an **excellent filtration project**, dedicated to the **extra virgin olive oil and also to other filtration practices**, especially with filter sheets (cardboard).

Extra virgin olive oil, if left in contact with the sludge (processing residue) even for a short time, loses its distinctive cultivar traits necessary for its quality and to be classified as extra virgin.

AEB has long proposed **lenticular modules to filter newly produced oil**, in a single filtration step.

This method allows a **significant increase in the quality of extra virgin olive oils, overcoming “technological” limit due to the complexity of the residues** in the newly pressed oil.

Solid particles composed of cellulose or soil, water, wax, pectin-based colloids (protectors), etc., which are suspended in the new oil in considerable quantities, are trapped in the filters using various methods.

Two-stage filtration with different permeability (“wider” upstream, then progressively “tighter”) allows yields with an average at least **3-5 times higher** than those achievable using a single stage, thus resulting in important savings.



THE ADVANTAGES OF MODULES FILTRATION WITH DIFFERENT PERMEABILITY

Multiple advantages:

- **The housings are extremely easy to unload** thanks to the panel allowing the oil flow to be controlled by connecting nitrogen gas cylinder.
- The inverter and gears allow an **equal filtration even at very low flow rates** (which is normally the case for oil mills) and avoid pressure fluctuations.
- Significant **effort and time savings** in managing the filter.
- **Reduced filtration costs.**
- **Quality of oil maintained** over time.

THE RANGE

THE FILTER IS AVAILABLE IN VARIOUS MODELS:

Each model is combined with specific lenticular modules with well-defined filtering surfaces.

EVO Filter is also available in a compact and simplified version (**ECO EVO Filter**).

TYPE	NO. MODULES PER SINGLE HOUSING	MODULE TYPE	FILT. SURFACE (TOT. M ²) ⁽¹⁾	DIMENSIONS (W. X L. X H. CM)	VOLUME WHEN EMPTY (LITRES)
12.02	2	12"	7,2	230 X 110 X 190	73
12.04	4	12"	14,4	230 X 110 X 240	146
16.02	2	16"	14,4	230 X 110 X 190	95
16.04	4	16"	28,8	230 X 110 X 250	190

⁽¹⁾ Filtering surfaces refers to the use of two housings in parallel.

Flow rate (indicative) ⁽²⁾

Approx. 5 L/m²/minute

ΔP max

4 Bar

Cost of filtration (indicative) ⁽²⁾

0,03-0,07 € x Litre

⁽²⁾ Figure indicative of recorded oil mill costs for the 2019/2020 season.



ECO EVO FILTER

FIELDS OF APPLICATION

APPLICATIONS IN THE OIL INDUSTRY

SECTOR	METHOD
OIL MILL	• Directly downstream of the separator, synchronising the pump speed with the flow rate of the separator itself. • Filtering batches of oil direct from pressing and stored in tanks for only a few hours. • Filtering oil stored for long periods using the most suitable method (series, parallel, etc.).
INDUSTRIAL OIL COMPANIES	• To refine after large press or D.E. filters (30-100 m²).

USE IN OTHER INDUSTRIAL SECTORS

- Pharmaceutical or other companies that transform by-products of the food sector for use in the pharmaceutical sector.
- In the food and beverage sector in general, where possible (wine, beer, essential oils, etc.).

COMPONENTS EVO FILTER IS EQUIPPED WITH:



FILTRATION HOUSING

Two filtration housings can hold from 1 to 4 modules, size 12" or 16".



PRESSURE GAUGE UNIT

With sight glass, inert gas inlet and air outlet. The inert gas allows the oil to be isolated during production stops and the complete discharge of the oil at the end of production.



WASHING SOLUTION TANK WITH LEVELING PIN*



SIGHT GLASS ON OUTPUT PIPING*

* Not available in ECO version.

COMPONENTS EVO FILTER IS EQUIPPED WITH:



MANUAL FLOW CONTROL VALVES



UNFILTERED OIL RECOVERY TANK

Conveys the oil in the housings at the end of filtration.

TECHNICAL CHARACTERISTICS

The EVO Filter is made in **polished 316 stainless steel**.

The filtering section is composed of **2 filtration housings that can hold from 1 to 4 modules, size 12" or 16"**.

The housings are supplied with a **pressure gauge unit**, inlet sight glass and quick couplings to vent and empty the containers using nitrogen or a gas of choice, with adjustable gas inlet pressure.

Different filtration methods based on needs

The highly operational design allows extremely versatile use of the Evo Filter. Depending on how the special manual valves are used, the following filtering methods are possible:

- **Single housing** of choice, except for the second.
- **Both housings in series** (direct flow from first to second).
- **In parallel**, that is, by totalling the filtering surface of the modules contained in the two housings*.

From the control panel it is possible to **manage the filtering speed**, emptying of the single housings and oil intake pipe.

Oil recovery and transfer

The machine frame and **recovery & cleaning** section are composed of:

- A 250 litre holding tank supported by 4 pivoting wheels with park brake.
- A 20 litre tank for the recovery of unfiltered oil.

Both tanks are equipped with a drain valve to **facilitate the transfer of the oil contained therein**.

Monitoring of filtration quality

The output pipes of the second housing are fitted with a **sight glass** to monitor the quality of filtration, determined by simply **observing the clarity of the permeate**.

Easy to clean

The empty housings are very easy to clean. Simply follow these two steps:

1. Prepare a washing solution

The washing solution tank combined with **Nerlik Liquid** at 2% (specific alkaline detergent) until reaching the levels marked on the tank itself.

2. Clean the housings

Using the machine pump and simply opening the relative valve, it is possible to clean the two empty housings (one at a time) and the connected piping circulating the washing solution.

Power supply

The filter is equipped with a 1.5 Kw - 400V Archimedean screw pump controlled by inverter. This feature allows filtering with a broader range of flow rates, even very low ones, up to the potential of the filtering surface.

Power supply/Utilities

Power supply: 400 volt 16 A 3P socket + E.
 Air/nitrogen supply: pipe diameter 8 with 5 bar constant pressure.
 Intake and supply fittings (supplied): DIN 40 Female.

* Method not allowed in ECO version.

RECOMMENDED PRODUCTS

NERLIK LIQUID

At 2% to prepare the washing solution.



DANMIL DISC LENTICULAR MODULES

For insertion in the housings.





COLLABORATION BETWEEN AEB AND CNR-IBE

IN-DEPTH STUDIES ON THE EFFECTIVENESS OF THE EVO FILTER AND QUALITY OF OIL

Our Group worked with CNR-IBE (Institute of BioEconomy) during the 2019-2020 olive oil season, to verify and validate the effectiveness of the EVO FILTER in improving the qualitative characteristics of extra virgin olive oils resulting from immediate filtration upon completion of pressing operations.

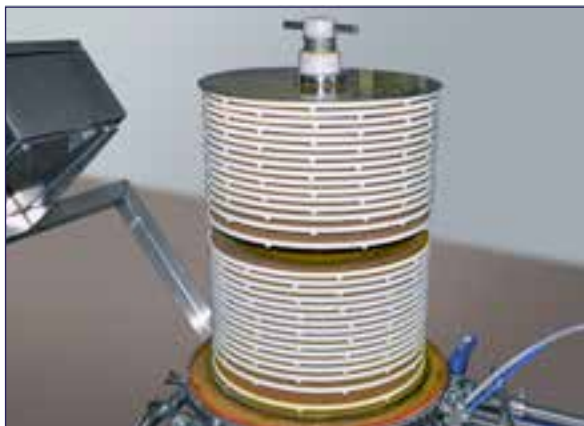
The study, conducted over the full year, has demonstrated that oil filtered with EVO FILTER maintains its characteristics of excellence, as proven by the analyses reported below.



IBE, INSTITUTE OF BIOECONOMY

The Institute of BioEconomy, part of the National Research Council (CNR IBE) was founded on 1st June, 2019 following a merger between the Institute of Biometeorology (IBIMET) and the Trees and Timber Institute (IVALSA), which over the years have acquired extensive expertise and complementarity in the strategic BioEconomics sector. The Institute, from its offices in Sesto Fiorentino (Firenze) and Follonica (Grosseto), studies and develops strategies to enhance the characteristics of excellence in the production of extra virgin olive oil, also through the protection and preservation of Italian and worldwide olive cultivars.

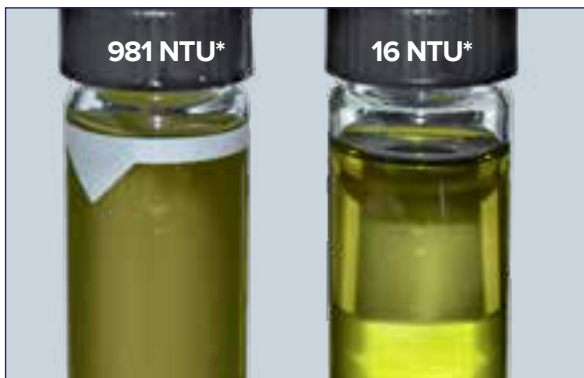
END OF NOVEMBER 2019 EXPERIMENTAL TRIALS WITH CNR-IBE 2019



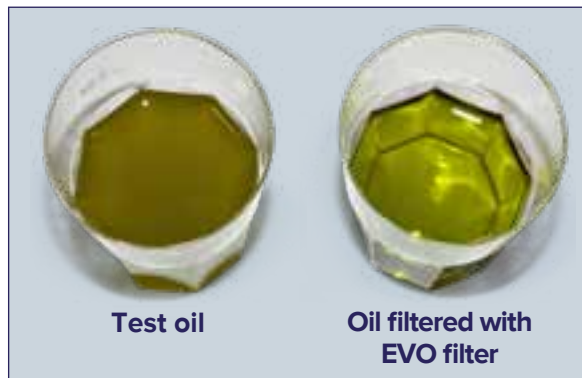
WEIGHT MODULES	NEW	5,6 kg
	EXHAUSTED	1ST STAGE 19,8 kg
		2ND STAGE 17,9 kg



OUTPUT OIL BEFORE FILTERING

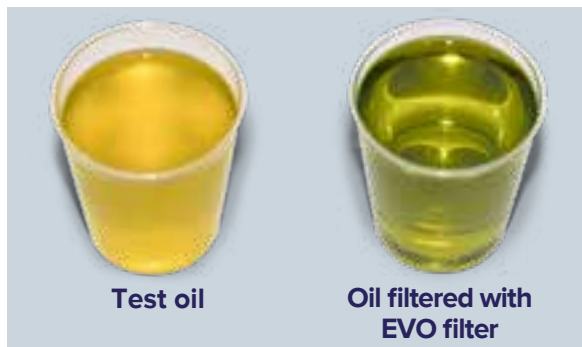


**INSTRUMENTAL ANALYSIS WITH
NEPHELOMETER**
*NTU (Nephelometric Turbidity Unit)



SENSORIAL ANALYSIS

END OF MAY 2020



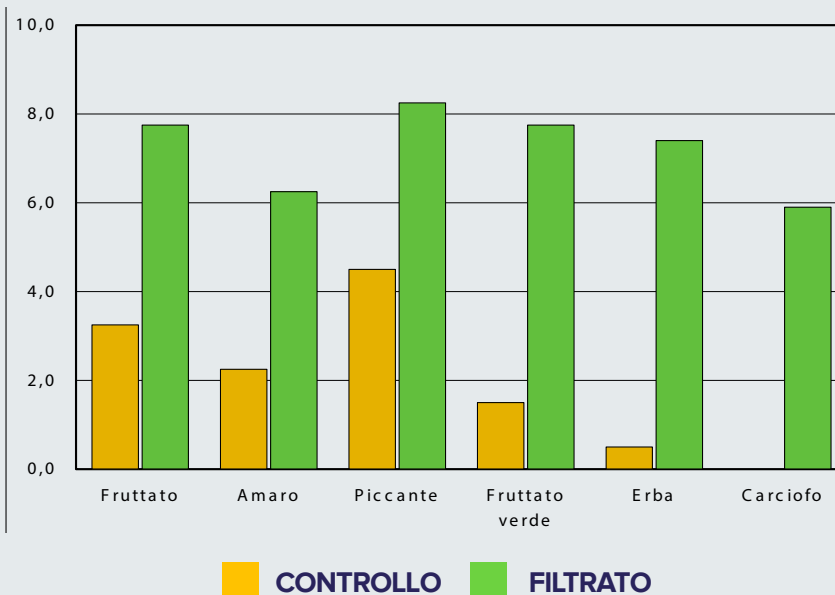
SENSORIAL ANALYSIS - VISUAL INSPECTION

CHANGE IN POLYPHENOL CONTENT (MG/KG) OVER TIME



SENSORIAL ANALYSIS: COMPARISON OF OIL AROMATIC PROFILES

24TH JANUARY 2020



Two months after extraction, the inspected oil (unfiltered) presented clear defects linked to hints of mould and winy scents, an unmistakable sign of fermentation phenomena during storage of the oil. The main aromatic notes are very weak.

Two months after extraction, the inspected oil was still characterised by a fresh, fruity green, very intense, with distinct notes of cut grass and artichoke. The strong bitter and spicy notes were well balanced. Excellent oil, very fine and elegant, it shows a weak astringency.