be produced at room temperature keeping active ingredients unaltered. These applications can be used on the industrial, laboratory and home scale.

> **In the cosmetics and perfume industries**
oth in the production and research sectors, vegetable extracts that contain pigments and odorous substances can be produced for cream and perfume formulas. These applications can be used on both the industrial and home scale.

> **In chemical analysis laboratories**
Naviglio Estrattore® can be applied during sample preparation and used as an alternative to maceration extraction methods (Batch) or extraction with Soxhlet. The slowest phase in analysis is the sample preparation phase and the introduction of Naviglio Estrattore® saves time leaving thermolabile analytes unaltered. This way, pesticides and contaminants can be extracted from food and environmental matrixes such as aromatic polycyclic hydrocarbons, heavy metals, pesticides, dioxins, etc.

> **Using Naviglio Estrattore® makes the natural substance extraction process from vegetable matrixes** easier since the machine automatically runs static and dynamic cycles to fully deplete the vegetable.

automatic squeezing system (500 - 1000 - 2000 cc model)

automatic squeezing system (5 - 10 - 20 - 30 - 40 l model)

naviglio ESTRATTORE®

"Thanks to the automation in Naviglio Estrattore®, anyone can achieve solid-liquid extraction without any prior experience to quickly obtain extracts from vegetable matrixes"

ATLAS FILTRI® ENGINEERING

manufactured and marketed by **ATLAS FILTRI ENGINEERING division of ATLAS FILTRI s.r.l.**

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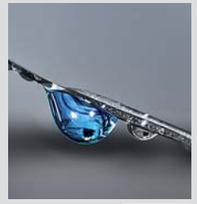
naviglio ESTRATTORE®

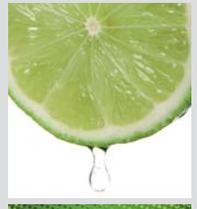
FAST DYNAMIC SOLID-LIQUID EXTRACTOR

> **In the beverage sector**
liqueurs such as limoncello, myrtle, fennel, liquorice liqueurs and bitters can be quickly produced from alcohol extract (just a few hours compared to the days required for maceration). Additionally, wine and grappa can be aromatised with various vegetable matrixes and, given the high extraction process efficiency, the grappa, wine and liquor aging processes can be accelerated. These applications can be used on both the industrial and home scale.

> **In the food industry**
both in the production and research sectors, Naviglio Estrattore® can be used in the fast hydration of legumes and room temperature destructuration of vegetables (replacing heating) for better nutritional element preservation. Furthermore, lycopene can be extracted from tomato processing scraps using water as the extraction liquid. Lycopene can be used as a colorant and/or natural antioxidant. These applications can be used on both the industrial and laboratory scale.

> **In the herbal and phytotherapy industries**
both in the production and research sectors, Naviglio Estrattore® is used for medicinal plant and herb extraction to produce fluid extracts. Since the extraction system does not require heating, herbal teas can





FAST DYNAMIC SOLID-LIQUID EXTRACTOR

Atlas Filtri manufactures and markets and innovative solid-liquid extractor, the **Naviglio Estrattore®**, which is a valid alternative to traditional extraction techniques such as maceration and percolation, whose extraction processes are exclusively based on diffusion and/or osmosis phenomena. Solid-liquid extraction based on these phenomena generate a passive process meaning a waiting period is required for the substances in the solid to solubilise in the extraction liquid. In these cases, the diffusion process can only be accelerated by increasing the molecules' kinetic energy through either agitation or heating (Flick law).

Naviglio Estrattore® is designed to:

- Prepare fluid extracts, mother tinctures, glycerine preparations, oleolites
- Extract from officinal plants for the pharmaceutical, homeopathic, botanical and cosmetic sectors
- Extract from vegetable substances in the food, diet, Zootechnical sectors
- Produce fruit and herb spirit
- Rehydrate dried vegetables quickly

Particularly suitable for research and analysis laboratories, chemistry, universities, it can treat both dry and fresh materials such as: flowers, leaves, buds, fruit, roots, bark, stems, seeds, officinal plants, herbs and any other vegetable material.

Naviglio Estrattore® or fast dynamic solid-liquid extractor, exploits the pressure difference that is generated by compressing the extraction liquid on the solid matrix:

> ***A pressure gradient is produced between the solid interior and exterior to extract, due to mainly physical effects, the substances that are not chemically bound inside the solid matrix.***
>
> ***(Naviglio Principle)***

Due to this effect, the fast liquid flow out of the solid drags non-chemically bound compounds in the matrix outwards, thus in the solvent; this way, even non-soluble substances can be extracted in the extraction liquid.

Naviglio Estrattore® changes the traditional extraction philosophy since the solid-liquid extraction process becomes an active process for which the substances to be extracted are forces to exit the solid matrix due to the "suction" effect.

Thanks to the active extraction process at the base of the fast dynamic solid-liquid extractor, it may be used in different and multiple application fields in the research, technology and chemical laboratory sectors. In fact, its use ranges from the **cosmetic field to food industries, from beverage to herbal and phytotherapy industries and can even be applied in chemical and research laboratory analyses during sample preparation phases.**

The solid material to be extracted can be whole or finely divided and can contain water or be lyophilised.

TECHNICAL FEATURES 500 - 1000 - 2000 cc models

Volume of the extraction chamber	cc	~ 500	~ 1000	~ 2000
Volume of the whole extraction circuit when empty	cc	~ 650	~ 1200	~ 2250
Working pressure of the extraction circuit	bar	0 ÷ 8,5	0 ÷ 8,5	0 ÷ 8,5
Compressed air working pressure	bar	~ 4	~ 4	~ 4
Compressed air supply pressure	bar	6 ÷ 10	6 ÷ 10	6 ÷ 10
Average consumption of compressed air (with standard cycle)	Nl/h	1500	1550	1600
Electricity supply with an IEC plug	V/Hz	230 / 50/60	230 / 50/60	230 / 50/60
Working temperature	°C	5 ÷ 45	5 ÷ 45	5 ÷ 45
Absorbed power	W	≤ 200	≤ 200	≤ 200
Materials in contact with the extract	Extraction circuit CLAMP gaskets Special gaskets Hose	AISI304L stainless steel Silicone EPDM Silicone - PFA	AISI304L stainless steel Silicone EPDM Silicone - PFA	AISI304L stainless steel Silicone EPDM Silicone - PFA
Compressed air supply connection	G	1/4"	1/4"	1/4"
Extraction circuit outlet connection (DIN hose fitting)	mm	Ø 11 with hose	Ø 11 with hose	Ø 11 with hose
Dimensions with machine fitted	mm	380x350xh850	380x350xh850	380x350xh850
Machine weight when empty	Kg	≤ 29	≤ 29	≤ 30

TECHNICAL FEATURES 5 - 10 - 20 - 30 - 40 l models

Volume of the extraction chamber	liters	~ 5,0	~ 10,0	~ 20,0	~ 30,0	~ 40,0
Volume of the whole extraction circuit when empty	liters	~ 6,0	~ 11,25	~ 21,5	~ 31,5	~ 41,5
Working pressure of the extraction circuit	bar	0 ÷ 8,5	0 ÷ 8,5	0 ÷ 8,5	0 ÷ 8,5	0 ÷ 8,5
Compressed air working pressure	bar	~ 4,5	~ 4,5	~ 4,5	~ 4,5	~ 4,5
Compressed air supply pressure	bar	6 ÷ 10	6 ÷ 10	6 ÷ 10	6 ÷ 10	6 ÷ 10
Average consumption of compressed air (with standard cycle)	Nl/h	1800	2300	2700	3000	3000
Electricity supply with an IEC plug	V/Hz	230 / 50/60	230 / 50/60	230 / 50/60	230 / 50/60	230 / 50/60
Working temperature	°C	5 ÷ 45	5 ÷ 45	5 ÷ 45	5 ÷ 45	5 ÷ 45
Absorbed power	W	< 100	< 100	< 100	< 100	< 100
Materials in contact with the extract	Extraction circuit Gaskets Special gaskets Hose	AISI304L stainless steel DIN - Silicone EPDM FDA Approved PFA	AISI304L stainless steel DIN - Silicone EPDM FDA Approved PFA	AISI304L stainless steel CLAMP - Silicone EPDM FDA Approved PFA	AISI304L stainless steel CLAMP - Silicone EPDM FDA Approved PFA	AISI304L stainless steel CLAMP - Silicone EPDM FDA Approved PFA
Compressed air supply connection	G	1/4"	1/4"	1/4"	1/4"	1/4"
Extraction circuit outlet connection (DIN hose fitting)	mm	Ø 15	Ø 15	Ø 15	Ø 15	Ø 15
Dimensions with machine fitted	mm	780x570x1300 h	780x570x1460 h	800x650x1450 h	800x650x1450 h	800x650x1550 h
Machine weight when empty	Kg	110	115	125	130	135