



# SUPERCritical FLUID

## EXTRACTION SYSTEMS

A vibrant, high-speed photograph of a powder explosion. The explosion is centered, with a large, billowing cloud of orange and yellow powder on the left and a more dispersed, fan-like spray of pink, purple, and blue powder on the right. The background is a plain, light gray.

**DISCOVER**  
THE  
HARMONY







# High Efficiency, Purity and Control

*Supercritical Fluid Extraction (SFE) is a process of separating desired substances from mixtures using a suitable solvent. Carbon dioxide, the most commonly used solvent, is preferred for its environmental friendliness and the ease with which its physicochemical properties can be adjusted. This method is particularly effective in purifying heat-sensitive compounds and prevents chemical degradation.*

*SFE performs extraction more quickly and selectively compared to traditional methods. Continuous system feeding accelerates mass transfer, reduces solvent usage, and offers economic advantages. Moreover, it leaves no solvent residue at the end of the process, eliminating the need for additional purification.*

**Supercritical Fluid Extraction Systems**  
*can be produced in different capacities to suit your needs.*



# Application Areas



## Food

Natural Colorants  
Aroma Extraction  
Pesticide Removal  
Caffeine Extract  
Oilseed Processing  
Coffee  
Tea  
Hops



## Cosmetic

Essential Oils  
Fragrance Extracts  
Natural Pigments



## Pharmaceutical

Extraction of Plant Active Ingredients  
Antioxidant Extraction  
Medical Cannabis Extract  
Microalgae Extract  
Concentration of Carotenoids



## Chemistry

Polymer Synthesis  
Pollutant Cleaning  
Coating and Painting  
Aerogel Production  
Impregnation  
Cleaning of Electronic Materials  
Enzymatic Reactions  
Nano Particle Production  
Biofuel Production  
Hydrocarbon Purification





# Advantages of SFE

**Easy Accessibility:** CO<sub>2</sub>, which exists as a gas under atmospheric pressure and is naturally abundant in the atmosphere, is readily available and can be safely used during processes due to its gaseous state.

**Environmentally Friendly:** CO<sub>2</sub> is a non-toxic and eco-friendly solvent, making supercritical CO<sub>2</sub> extraction minimize the risk of environmental harm.

**Selectivity:** The solvency properties of CO<sub>2</sub> allow for selective dissolution of specific components, facilitating the removal of undesirable components and achieving a purer extraction of the target compounds.

**Clean Extraction:** Supercritical CO<sub>2</sub> extraction is an effective method for obtaining high-purity products. This process generally does not involve additives or leave solvent residues.

**Low Temperature:** The temperature and pressure conditions under which CO<sub>2</sub> reaches its supercritical phase are generally low, which helps preserve heat-sensitive components.



*Discover The Purity At  
The Heart Of Nature*



*Your Destination for Reliable  
and Advanced Solutions*

# Advantages of Polat Extraction

- High material quality
- Various product and capacity options tailored to your process needs
- Custom design and R&D activities to meet your specific requirements
- Design compliant with occupational health and safety standards
- Low maintenance costs
- Customer-focused service and solutions
- Capability to operate at low temperatures
- Continuous process optimization with PLC and SCADA





# 5 continents 44 countries

Group companies in 3 countries  
Dealership, distributorship and agency in 15 countries.

## Group Companies

Italy  
Greece  
Morocco

## Dealer & Distributor & Agency

Germany	China	Egypt
Spain	Argentina	Tunisia
Belgium	Brazil	Jordan
Ukraine	Iran	Algeria
Russia	Malaysia	England

## Exported Countries

U.S.A	Georgia	Uzbekistan	Tunisia
United Kingdom	Australia	Tataristan	Morocco
Italy	Albania	Iran	Sudan
Spain	Ukraine	Iraq	Libya
Belgium	Russia	Nicaragua	Lebanon
Slovakia	Azerbaijan	Kazakhstan	Palestine
Poland	Cyprus	Malaysia	Egypt
Greece	China	India	Syria
Romania	Kosovo	South Africa	Jordan
Germany	Argentina	Qatar	Ethiopia
Switzerland	Brazil	Saudi Arabia	Algeria

We are at your disposal **all around the World.**





**LABORATORY**  
**PEX1002**

Extractor Total Volume (Lt) 2 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 5 kg/h  
Max Pressure (Bar) 550 Bar

**PILOT**  
**PEX2005**

Extractor Total Volume (Lt) 10 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 25 kg/h  
Max Pressure (Bar) 350 Bar

**PILOT**  
**PEX2020**

Extractor Total Volume (Lt) 40 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 100 kg/h  
Max Pressure (Bar) 350 Bar

**INDUSTRIAL**  
**PEX2100**

Extractor Total Volume (Lt) 200 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 500 kg/h  
Max Pressure (Bar) 350 Bar

**LABORATORY**  
**PEX1005**

Extractor Total Volume (Lt) 5 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 12,5 kg/h  
Max Pressure (Bar) 350 Bar

**PILOT**  
**PEX2010**

Extractor Total Volume (Lt) 20 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 50 kg/h  
Max Pressure (Bar) 350 Bar

**INDUSTRIAL**  
**PEX2050**

Extractor Total Volume (Lt) 100 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 250 kg/h  
Max Pressure (Bar) 350 Bar

**INDUSTRIAL**  
**PEX2200**

Extractor Total Volume (Lt) 400 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 1000 kg/h  
Max Pressure (Bar) 350 Bar

**INDUSTRIAL**  
**PEX2500**

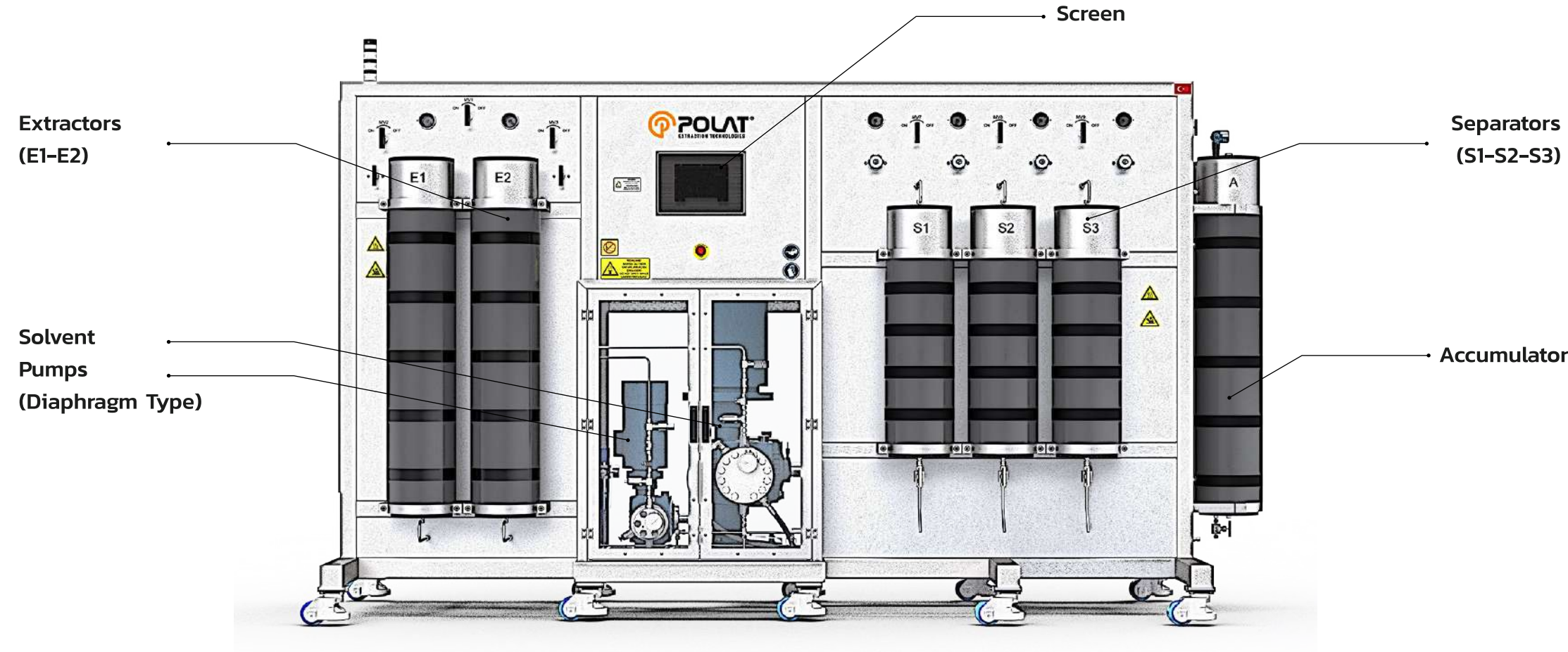
Extractor Total Volume (Lt) 1000 Lt  
Max CO<sub>2</sub> Capacity (kg/h) 2500 kg/h  
Max Pressure (Bar) 350 Bar

**Polat Supercritical Fluid  
Extraction Systems**

can be produced in different  
capacities to suit your needs.







## GMP

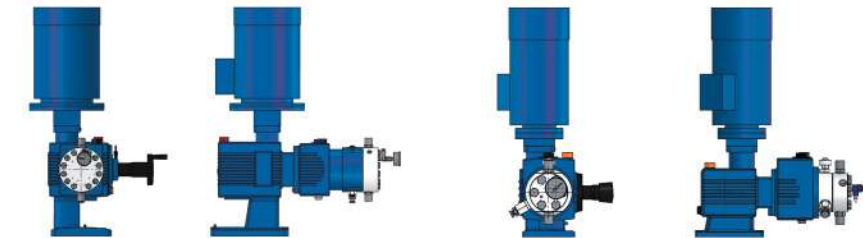
Good Manufacturing Practices (GMP) are a manufacturing and testing practice that helps obtain a quality product. The GMP guide provides us with guidance for the production of Active Pharmaceutical Ingredients (APIs) under an appropriate system to manage quality.

Good Automated Manufacturing Practices (GAMP) focus on the entire system and the final product, while the FDA focuses on each process and production stage contributing to the final product. FDA guidelines have been incorporated into GAMP guidelines. Specifically, Title 21 CFR Part 11 is part of Title 21 of the Code of Federal Regulations, which establishes the United States Food and Drug Administration (FDA).



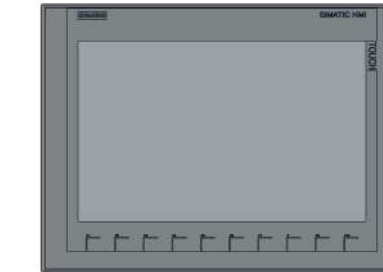
## Diaphragm Type Pump

- Provides precise flow control at high pressures.
- Due to their design, diaphragm pumps operate without dynamic seals. This ensures there are no external emissions and contamination of the fluid is impossible.
- Provides high-level safety and immediately indicates diaphragm damage.
- Adjustable stroke allows operation at different flow rates at the existing pressure.
- Offers the highest efficiency compared to piston and other types of pumps.
- Designed with hygienic considerations.
- Generates low maintenance costs.
- Since there are no touching parts, there is no wear due to friction. Thus, it is hermetically leak-proof.
- An integrated safety valve is included in the system.



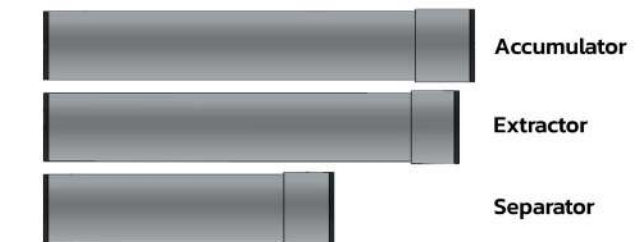
## Screen

- Compliant with GAMP5 standards
- Features 0%-100% screen brightness adjustment supported by Profienergy.
- Equipped with two SD card slots (for service and data storage purposes).
- Supports keyboard, mouse, and printer connections via USB, recipe functionality, permanent alarm buffer, and archiving of messages and process values.
- Boasts a high-resolution, adjustable wide screen with 64,000 colors.
- Offers an innovative user interface and improved usability through new controls and graphics.
- Includes touch/button functionality for intuitive use.



## Extractor, Separator, and Accumulator

- Manufactured using a seamless construction technique.
- Made from solid billet of 316-grade stainless steel.
- Features a male-female connection between the cover and body.
- The interior surfaces are honed to be smooth.
- Certified through hydrostatic pressure testing in accordance with relevant regulations (Pressure Equipment Directive, PED).





# 365 days 24/7 Exceptional Service



*We take customer satisfaction  
one step further!*

## Wide Service Network

We provide service to you at any time with our experienced service technicians located all over the world.



## Service Maintenance Agreements

We minimize malfunction-related downtime in production facilities through service maintenance agreements.



## 24/7 Technical Support

We offer online support for immediate intervention in case of any needs



## Equipment Revisions

We renew Polat-branded equipment, restoring them to their initial performance.



## Original Spare Part

All spare parts used by Polat Technic unit are original.



## Preventive Maintenance

We ensure that all checks are carried out periodically, detecting malfunctions in advance and preventing malfunction-related downtime.



## Operator Training

We aim to achieve maximum efficiency through operator training.



## Automation & Remote Control

With automation and remote control systems, we proactively detect issues before they escalate, minimizing production losses.



*Professional Team, Fast Solution*



Who we are?

Having been laid the foundations in 1978, Polat Makina aims to improve constantly and provide products and services in global-scaled quality and standards with its employees.

It continues its journey which had began in an atelier for 4,5 m² by exporting the values manufactured in an area for 88,000 m² for 44 countries in today's world. Polat Makina is a subsidiary of Polat Group Holding, which has 13 group companies, 4 of which are located abroad, in Italy, Germany, Greece, and Morocco.

Our values

*We prioritize creating value for our customers, meeting their expectations in company with quality and stability, looking after our products and being there for our customers aftermarket process. We aim to realize a corporate management faithful to the values such as modesty, human and endeavor, public closeness and social responsibility awareness. Another fundamental principle which we prioritize is to fulfill our responsibilities for today's world and future generations.*

Eco-friendly

*As a responsible corporate entity, Polat Makina is committed to reducing its environmental impact through eco-friendly policies and practices. We understand the urgent need to address climate change and its impact on our planet. Our eco-friendly policy includes reducing our carbon footprint by using renewable energy sources, reducing waste, and recycling materials.*

*We also encourage sustainable transportation and use of energy-efficient appliances. Our commitment to eco-friendly practices extends to our supply chain, where we work with our suppliers to ensure they also follow eco-friendly policies. We believe that every action we take towards sustainability can contribute to a greener future for our planet.*

Commitment to Human Rights

*Our company is committed to promoting and protecting human rights in all aspects of our operations. We recognize the impact our operations can have on human rights and are committed to respecting the rights of our employees, contractors, suppliers, and the communities in which we operate.*

*Our human rights policy is based on international human rights principles and we strive to create a workplace culture that is free from discrimination and exploitation. We monitor our supply chain for human rights abuses and support human rights initiatives in the communities in which we operate. We believe that every person deserves dignity, equality, and justice and are committed to upholding these principles in all that we do.*



Discover the Harmony  
in the Flow of Life





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Polat reserves the right of design and technical changes for itself to change machine.

**Polat Makina Customer Service**

For Sale, Service, Maintenance and Complaints requests you can reach Polat Makina customer services at the following number:

**+90850 255 1978**