



Supercritical CO₂ Extractors

/ Laboratory and Processing Equipment



LAB1ST / Laboratory and Processing Equipment

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SUPERCRITICAL CO2 EXTRACTORS

Supercritical CO2 extraction is the process of separating one component (the extractant) from another (the matrix) using supercritical fluids - CO2 as the extracting solvent. Lab1st SFE-series supercritical CO2 extractor can yield safer, cleaner and purer oil from botanical plant material. It has been used in the food, cosmetics and pharmaceutical industries.

CO2 extraction applies with the method of pressurized carbon dioxide in a selected temperature and pressure to get the desired compounds. Under the special temperature and pressure (temperature higher than 31 Celsius degrees, and pressure higher than 1071PSI), CO2 steps into a supercritical state. Carbon dioxide becomes a supercritical fluid after that with a low viscosity and no interfacial tension, thus improving its capacity for solubility and therefor achieving higher efficiency of extraction. These properties make it suitable for many different processes.

As one of the largest and most experienced supercritical CO2 extraction solution suppliers in China, we offer standard or customized models of different volumes and pressure ratings, with throughput from 5lbs dry biomass per day to 15000lbs per day, to meet your needs. The lead time is usually within ONE month. Furthermore, we are also experienced in offering botanical extraction turnkey solutions (especially those of hemp and cannabis extractions), by commissioning 100+ supercritical co2 extractor systems around the world.

Labfirst is ready to help you achieve your goal of getting higher throughput with lower operating cost.



MODEL TABLE

Capacity	Model	Extractors and Separators
0.5L	SFE 0.5Lx1/50Mpa	1 extractor; 2 seperators
1L	SFE 1Lx1/50Mpa	1 extractor; 2 seperators
2L	SFE 2Lx1/50Mpa	1 extractor; 2 seperators
5L	SFE 5Lx1/50Mpa	1 extractor; 2 seperators
5L+1L	SFE 5L+1L/50Mpa	2 extractors; 2 seperators
10L	SFE 5Lx2/50Mpa	2 extractors; 2 seperators
20L	SFE 10Lx2/40Mpa	2 extractors; 2 seperators
50L	SFE 25Lx2/40Mpa	2 extractors; 2 seperators
100L-1	SFE 25Lx4/40Mpa	4 extractors; 2 seperators
180L	SFE 30Lx6/40Mpa	6 extractors; 3 seperators
100L-2	SFE 50Lx2/40Mpa	2 extractors; 3 seperators
200L	SFE 50Lx4/40Mpa	4 extractors; 3 seperators
300L-1	SFE 150Lx2/40Mpa	2 extractors; 3 seperators
300L-2	SFE 50Lx6/40Mpa	6 extractors; 3 seperators
150Lx4	SFE 150Lx4/40Mpa	4 extractors; 3 seperators
300Lx4	SFE 300Lx4/35Mpa	4 extractors; 3 seperators
1000Lx2	SFE 1000Lx2/35Mpa	2 extractors; 3 seperators
1500Lx2	SFE 1500Lx2/35Mpa	2 extractors; 3 seperators
2000Lx2	SFE 2000Lx2/35Mpa	2 extractors; 3 seperators
3000Lx2	SFE 3000Lx2/35Mpa	2 extractors; 3 seperators
150Lx3	SFE 150Lx3/35Mpa	3 extractors; 3 seperators
300Lx3	SFE 300Lx3/35Mpa	3 extractors; 3 seperators
500Lx3	SFE 500Lx3/35Mpa	3 extractors; 3 seperators
600Lx3	SFE 600Lx3/35Mpa	3 extractors; 3 seperators
1000Lx3	SFE 1000Lx3/35Mpa	3 extractors; 3 seperators
1500Lx3	SFE 1500Lx3/35Mpa	3 extractors; 3 seperators
2000Lx3	SFE 2000Lx3/35Mpa	3 extractors; 3 seperators
3000Lx3	SFE 3000Lx3/35Mpa	3 extractors; 3 seperators
Customized models are available for different pressure and volume		

TECHNICAL DATA

Model		SFE-5L*1	SFE-25L*2	SFE-50L*2	SFE-50L*4	SFE-150L*2	
Main parameters	Environmental temperature	≤30℃					
	Optimal environmental humidity	85%					
	Total power consumption(kw)	11	40	67	90	100	
	Electricity	220V/380V/480V; 3P; 50/60Hz					
	Temperature sensor	PT100					
	Steel material	SUS304 as standard, optional upgrade to SUS316					
	Certification	ASME					
	Safety protection	Over-pressure protection for the high-pressure pump outlet; safety valves for extraction, separation, evaporator, and mixer					
Vessel	Extractor	Quantity(unit)	1	2	2	4	2
		Volume(L)	5	25	50	50	150
		Max pressure(Mpa)	50	40	40	40	40
		Working temperature	RT-80℃				
	Separator	Quantity(unit)	2	2	2	3	3
		Volume(L)	2	17, 10	27, 17	20, 17, 17	39, 25, 25
		Max pressure(Mpa)	30	20	20	15	20
		Working temperature	RT-80℃				
	CO2 storage vessel	Quantity(unit)	1	1	1	1	1
		Volume(L)	5	30	100	100	100
		Max pressure(Mpa)	16	16	9	9	9
		Working temperature	5 - 45℃				
Transfer pump	Co-solvent pump	Flow(L/h)	4	10	20	20	20
		Max outlet pressure(Mpa)	20	20	15	15	15
	CO2 pump	Flow(L/h)	0 - 50	0 - 400	0 - 800	0 - 1000	0 - 1500
		Max outlet pressure(Mpa)	20	50	50	35	35
		Adjustment method	Frequency adjustment				
	Recycling pump		No	No	Yes (max pressure 6.5 Mpa)		
Dimension	Product size	Length*Width*Height(mm)	3500*1000*1700	4500*3960*4236	4920*3715*4070	6100*3380*4070	5710*4711*5279
	Packages size	Length*Width*Height(mm)	Based on the packing list				
		Weight(kgs)	1202	4084	7100	8594	11260

ADVANTAGES

- Higher pressure rating compared to competitors, up to 50 Mpa (7250 psi)

- Double safety protection, with over pressure protection gauges & safety valves

Performance

Safety

Delivery

Variety

- Short lead time within 1 month

- Available for both lab and industrial needs (0.5L to 3000L vessels)



Certifications

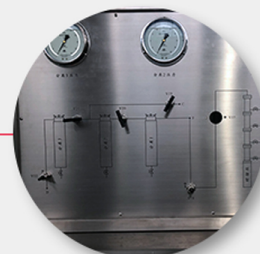
Support

- Onsite or remote commissioning and training service



MORE FEATURES

- Pressure and temperature can be easily adjusted and controlled precisely; User-friendly CO2 flow route design with self-explanatory flow chart for easy training and easy operation.



- Low extraction temperature suitable for extraction and purification of heat sensitive compounds; High efficiency CO2 high pressure pump can increase the pressure in the shortest time.



- Special design inside the pump piston system, to extend the pump's life time with few maintenance required; 99% of the system assembled before shipping, easily installation at customer site.



- Closed loop system recovers 95%+ of CO2; High quality back-pressure regulators.



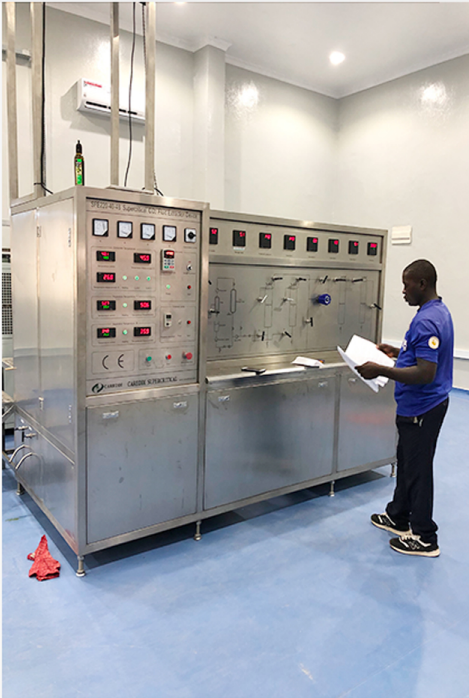
- Few requiring maintenance with a special design in the pump piston system. Unique highly integrated system, smaller footprint but higher output.



WORKSHOP



WORLDWIDE PROJECTS



APPLICATION

Pesticide extraction



Food ingredient



Medicine extraction



Cosmetic extraction



Aerogel insulation material



Health care products



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