A background illustration featuring coffee beans, coffee plants with leaves and cherries, and coffee branches scattered across the dark brown background.

Coffee Extraction: Getting the most out of every Coffee bean

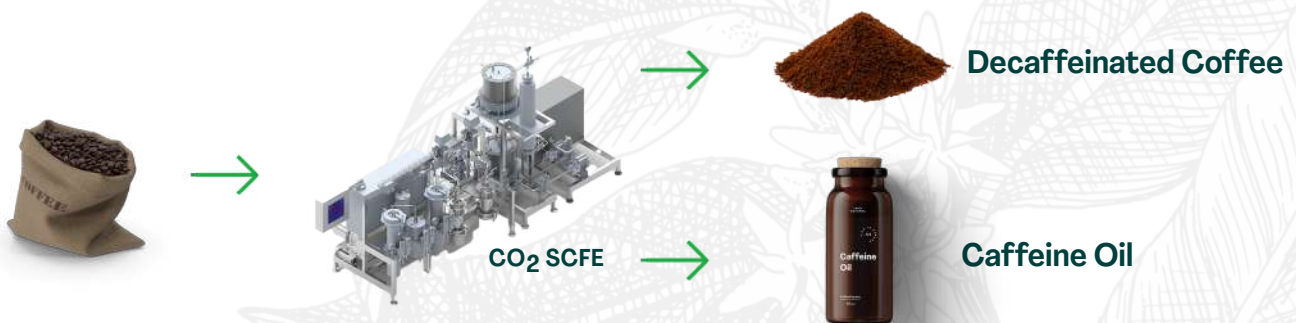
Why Coffee?

The food, pharmaceutical and chemical industries has seen an immense demand for coffee extracts. Products containing 'natural' caffeine are generally perceived to be healthier than those containing 'synthetic' caffeine. Carbon dioxide (CO₂) supercritical fluid extraction is a viable solution to get 'natural' caffeine from coffee, with valuable by-products such as Decaf coffee. Thinking beyond the beverage allows manufacturers to unlock the full potential of Coffee beans with extracts fetching up to 50x more than the produce.

The Extraction Advantage

Extraction using supercritical carbon dioxide is a highly selective process. It only extracts the Caffeine compound and leaves the other flavour precursors (such as carbohydrates and peptides) in the bean, delivering superior quality and yield of products at low pressures and near-room temperature, making it a cost-effective solution in the Coffee Extraction business.

Moreover, SCFE preserves the purity of the ingredients without loss of heat-sensitive and volatile components, and is free of residual solvent and microbial contaminants.



Requirements in Extraction

- ◆ Lower adulteration in extraction process.
- ◆ The extracted solvent should have higher bioactive and lower residues.
- ◆ The output should be chemical free.
- ◆ Multiple recipe selection.
- ◆ Clean, safe and Green Technology.
- ◆ Robust process and monitor controlling.
- ◆ Operational safety.
- ◆ Minimal human intervention.

Buffalo Extraction Systems Solution

Three levels of CO₂ SCFE equipment.



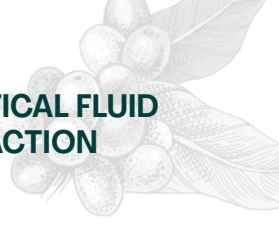
Level 1



Level 2



Level 3



01

Accurate Pressure Control



02

Consistent Flow Control



03

Superior Sealing Technology



04

Unique Extractor Closure Design



05

Special Separator Design






06

Proprietary Changeover Valves

Bringing the Future of Extraction to the World

Our team starts by blending principles with practicalities and continue by connecting proven automation process blocks into a holistic solution.

-  **Integration:** Combining scientific and engineering principles with a rich and diversified practical experience to provide innovative solutions to challenges.
-  **Modularity:** Automation based on proven process blocks.
-  **Connectivity:** Linking equipment and control systems via PCs and PLCs for seamless operation.



System Specifications

Parameters	Level 1	Level 2	Level 3
Single Extractor Volume (Litre)	5	25	100 / 200 / 300
No. of Extractors	2	2 or 3	2 or 3
Extractors Usage	Single	Single or Series	Single or Series
Pressure Bar (PSI)	350 – 650 (5000 – 9500)	350 – 650 (5000 – 9500)	350 – 650 (5000 – 9500)
Temperature — °C (°F)	70 – 110 (158 – 230)	70 – 110 (158 – 230)	70 – 110 (158 – 230)
CO₂ Recirculation	Yes	Yes	Yes
Extractor Changeover Valves	Manual or Automatic	Automatic	Automatic
CO₂ Pump Flowrate (LPH)	40 -80	150 -350	600 -3000
Co-Solvent Pump	Yes	Yes	Yes
CO₂ Feeding & Recovery System	Included	Included	Included
Available Certifications	CE / U / U2 cGMP / ASME BPE / UL / SIL-3	CE / U / U2 cGMP / ASME BPE / UL / SIL-3	CE / U / U2 cGMP / ASME BPE / UL / SIL-3
Area Required* (m/ft)	4.88 x 1.37 x 2.44 / 16 x 4.5 x 8	8 x 2.8 x 5.6 / 26 x 27 x 18.5	13.7 x 7.9 x 8 / 45 x 26 x 27

* All systems can be customized based on the factory layout.

Recent Projects



Pilot Scale Extraction System

- ◆ Research for Herbal products Extraction
- ◆ Capacity: 20L
- ◆ Pressure Rating: 650 bar
- ◆ Industry: Herbal Pharma Products
- ◆ Location: India



Production Scale Extraction System

- ◆ Essential Oil Extraction Plant
- ◆ Capacity: 300L
- ◆ Pressure Rating: 350 bar
- ◆ Industry: Essential Oil
- ◆ Location: Indonesia

Clients —



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