

## SYSTEM SPECIFICATIONS

# The Force<sup>®</sup>

### Extraction Vessel

- **Volume** – 80L vessel holds around 40 pounds of dry, ground material
- **Pressure** – maximum pressure = 5000 psi (344 bar)
- **Temperature** – max 160F (71C)
- **Materials** – 304 stainless steel. Vessel interior is polished to food grade level.
- **Closures** – Quick open closure with hoist
- **Sealing mechanism** – spring energized cup seal/o-ring
- **Filter** – integral filters on closure heads. 20 micron.
- **Temperature measurement** – internal K type thermocouple senses actual extraction temperature
- **Safety** – non-isolable spring loaded safety relief valve prevents accidental over-pressurization

### CO<sub>2</sub> Recirculation Pump

- Electric motor driven diaphragm compressor
- **Flowrate** – 3.5-4.2 kg/min
- **Construction** – hydraulically actuated diaphragm
- **Materials** – all wetted parts are 316 stainless steel
- **Safety** – non-isolable spring loaded safety relief valve prevents accidental over-pressurization

### Separators

- 2 separator banks on each unit
- **Pressure** – Maximum pressure = 600 psi (41 bar)
- **Temperature** – up to 160F (71C)
- **Materials** – 304 stainless steel
- **Closures** – FDA sanitary style bolted
- **Sealing mechanism** – sanitary gasket, cured silicone
- **Safety** – non-isolable spring loaded safety relief valve prevents accidental over-pressurization

### Separation Mechanism

- Valveless Expansion Technology (VET) – flow path from extractor to 1st separator is continuous diameter with no constrictions. Separation occurs in 1st separator utilizing centrifugal separation and depressurization.

### Heat Exchanger

- **Construction** – tube in tube style
- **Materials** – 304 stainless steel
- **Cooling/Heating media** – water

### Chiller/Heater

- Recirculating chiller/heater
- Temperature range: -10C to 50C (14F to 158F)
- System operation range: 70F-140F

### Control System

- **Functions** – Fully automatic Programmable Logic Controller (PLC) touch screen interface with first level safety functionality and user programmable pressure, temperature and time. Also has built in hour and maintenance timers, and alarm log.
- **Safety** – pressure transducers monitor system pressure and shut down system to prevent accidental over-pressurization
- Data acquisition
- Push alerts for system messaging
- UL508A Listed

