

SYSTEM SPECIFICATIONS

The Duplex®

Extraction Vessel

- **Volume** – 80L vessel holds around 40 pounds of dry, ground material
- **Pressure** – maximum pressure = 2000 psi (137 bar)
- **Temperature** – max 160F (71C)
- **Materials** – 304 stainless steel. Vessel interior is polished to food grade level.
- **Closures** – Hammer Union (commonly used in oil and gas industry for temporary piping), top with integral hinge
- **Sealing mechanism** – spring energized cup seal
- **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

CO₂ Recirculation Pump

- Electric motor driven diaphragm compressor
- **Flowrate** – 2.9-6.1 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

- External 10-ton chiller
- Advantage Central Chiller or MTA Tech Water Chiller
- Indoor temperature control units

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
- UL 508A Listed

