The centrifugal extractor mixes two immiscible liquids, a solvent and a liquid mixture, to extract a component of the mixture by utilizing the solubility of the solute for a homogeneous liquid separation process.

The extraction process involves:
1. Mixing an extraction solvent with the mixture for mass transfer
2. Separation of the raffinate and extract phase
3. Recovery of the desired component from the raffinate, usually by distillation

Features
- Small space requirements with no electrical actuators required
- Lower retention time and suitable for a wider range of flow ratios as compared to conventional extraction equipment
- Weir plates and rotation frequency can be adjusted for liquids of different densities and viscosities
- The single/multi stage equipment in either countercurrent or crossflow arrangement establishes equilibrium quickly
- Fully automatic operation for an uninterrupted continuous operation
- Small equipment requires minimal solvent/extract consumption
- The airtight equipment is suitable for explosive, toxic, hazardous and volatile fluids, and meets environmental and GMP requirements
- Various optional add-ons such as a Clean-In-Place (CIP) mechanism, inverters or an anti-emulsification setup

Process Description
The CTL Liquid/Liquid extractor/separator features a mixing and mass transfer process between two phases concurrently in the equipment.
1. Mixing and Mass Transfer Process: two phases of different densities are fed into the vessel and mixed for an efficient solute transfer from the mixture to the solute.
2. Separation Process: as the two phases are accelerated via the rotor, they are separated based on their differing densities. The denser phase is brought closer to the drum walls and exits through the top weir, while the lighter phase remains closer to the rotor and exits through a central weir.
Applications

- Hydrometallurgy (multi-stage extraction, stripping, etc to extract nickel, copper, and other metals)
- Chemicals, Fine Chemicals (catalyst extraction, etc)
- Pharmaceuticals (using ethyl acetate, toluene, and other organic solvents to extract active ingredients and Chinese medical herbs)
- Pesticide/Biotechnology (malathion extracted nutrients, interferon extraction)
- Food & Fragrances (cooking oil, spices, etc)
- Inks & Dyes (dye wastewater recycling)
- Environmental protection (multi-stage extraction, stripping, etc to treat phenol waterwater)
- Separation or extraction of marine waste, groundwater, etc
- Oil/water separation (crude oil/heavy oil/diesel with water)
- Cosmetics (extraction of nutrients)

Technical Innovations

- By changing the electrical motor for a belt drive, the system will achieve explosion prevention requirements.
- Changing the cantilever support into a multi legged structure provides increased stability.
- A specially designed drum provides an improved extraction & separation efficiency, and greatly reduces operation costs.
- A CIP mechanism eliminates problems caused by solid sediments.
- An anti-emulsifying structure allows the equipment to suit a larger range of applications.
- A multi-stage setup solves process issues such as gas lock.

Technical Parameters

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Drum Diameter (mm)</th>
<th>Capacity (L/hr)</th>
<th>Motor Voltage (V/AC)</th>
<th>Motor (kw)</th>
<th>Inlet/Outlet (mm)</th>
<th>Base Area (mm)</th>
<th>Height (mm)</th>
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