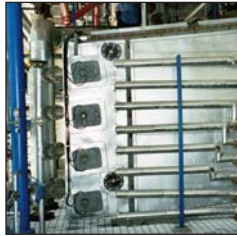


Specialty Extraction & Products

Crown Iron Works Company



Specialty Extraction



Model IV Immersion Extractor



Model V Solid/Liquid Extractor



Model III Percolation Extractor, SPC



Cascade Aspirator

WASHING & EXTRACTION

Crown provides Continuous Counter-Current Extractors to the Nutraceutical, Specialty Chemical, Food, Agro, and Waste Industries. Crown Extractors can be used for the Recovery of Nutraceutical Compounds, Essential Oils, Vegetable Proteins, or almost any Solid/Liquid Extraction. Crown's Extractors have also been used to wash Products of Reaction and Excess Reactants from Solids or Pollutants from Soils. One new application area is to displace one liquid on a solid with another liquid.

Crown's Continuous, Counter current, and Shallow bed approach to Extraction improves Product Recovery and minimizes Solvent usage.

Model IV Immersion Extractor: For granular or coarse products that sink in the solvent or are too fine for Percolation type extractors.

Residence times: 30 to 300 minutes.

Product Conveyance: Slow motion conveyors pull solid materials through a solvent bath

Model IV Advantages:

- Complete Immersion ensures good product contact with the solvent
- Complete bed turnover prevents solids compaction and packing
- Gentle motion and bed turnover minimizes product breakage
- Vapor tight design for operation with volatile solvents

Model V Percolation Extractor: For flakes, crushed beans, or leafy materials.

Residence times: 30 to 300 minutes.

Product Conveyance: Slow motion conveyor over a stationary screen. Solvent flow is top down for good draining materials.

Model V Advantages:

- Shallow material beds for materials that expand when wetted
- En-masse conveyors minimize product breakage
- Gentle paddle motion over stationary relieved screens prevent screen plugging
- Easy clean and CIP able designs
- Vapor tight design for operation with volatile solvents

Model III Percolation Extractor: For high volume extractions such as Vegetable Proteins, wood chips, polymers, or other products that drain well.

Residence times: 30 to 180 minutes.

Product Conveyance: Slow motion conveyors over a stationary screen. Solvent flow is top down for good draining materials.

Model III Advantages:

- Same advantages as the Model V plus
- High throughputs
- Complete bed turnover realigns the bed to promote good drainage
- Screen cleaning arrangements available that do not require plant shutdowns



Milling Flash Dryer

DRYING & DESOLVENTIZATION

Crown provides Continuous Dryer & Desolventizers to the Nutraceutical, Specialty Chemical, Food, Agro and Waste Industries to evaporate water or solvent wet materials. We can provide a variety of Direct Contact, Indirect Contact, and Combination Dryers including Flash, Semi Fluidized Bed, and Plate Dryers to dry slurries, pastes, powders, meals, and filter cakes. Heat sources can be steam, thermal oils, or direct-fired fuels. Gases for Direct contact Drying include Air, Nitrogen, and Super Heated Steam.

Milling Flash Dryer: For applications where a fine end product is desired
Type: Direct Contact, Pneumatic conveying
Milling Action: Jet Milling using low pressure jets of air to setup inter particle collisions w/o moving parts. Gases include Air, Nitrogen, Superheated Steam, or Solvents.
Residence times: less than one second
Temperatures: 55° to 760° C
Feed materials: Centrifuge and filter cakes, wet powders, and backmixed slurries
Liquids: Water and other solvents



Vertical Flash Dryer or Low temp Calciner

Vertical Flash Dryer: For applications where extended residence time is required for Drying or Low Temperature Calcination as with coarser products
Type: Direct Contact, Pneumatic Conveying. Gases include Air, Nitrogen, Superheated Steam, or Solvents.
Milling Action: None or Low Energy Dispersing
Residence times: up to five seconds in the Dryer, not including the balance of the system
Temperatures: 55° to 980° C
Feed materials: Centrifuge and filter cakes, wet powders, and backmixed slurries
Liquids: Water and other solvents



Down Draft Desolventizer

Down Draft Desolventizer: For larger particles that require extended residence times for drying
Type: Indirect Contact, heated plates using Steam or Thermal Oils
Product Conveyance: Low Speed En-masse conveyors over angled trays
Residence times: 15 to 60 minutes
Temperatures: Up to 250° C
Liquids: Water or other solvents. Vapor tight design

DTDC Desolventizer Dryer/Cooler: Vertically oriented tray/semi-fluid bed dryer for granular materials or flakes
Type: Combination Direct & Indirect Contact. Gases are Air, N2, Superheated steam
Product Conveyance: Mechanical sweeps and semi fluidizing gases
Residence times: 15 to 200 minutes
Temperatures: up to 250° C in Indirect Contact Zones, 150° C in Direct Contact Zones
Liquids: Water or other solvents. Vapor tight design.



DTDC Desolventizer Dryer Cooler

ASPIRATION

Cascade Aspirators: For making separations of granular products or of fiber from beans
Type: Impact Rods to gently break up agglomerates
Product Conveyance: Coarse product by gravity, fines by air conveyance
Feed Mechanism: Rotary Feeder to distribute the feed material across the entire width
Capacities: 1 to 100 tons per hour

Come Test your products in Crown's PILOT PLANT.





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