

Podbielniak[®] Extractor Centrifuges

**Precise, efficient extraction and
separation in a single machine.**



**B&P PROCESS
& P EQUIPMENT**

Strong Innovation • Strong Value • Strong Choice

A unique solution for extraction, separation, reaction, and washing – in a single machine

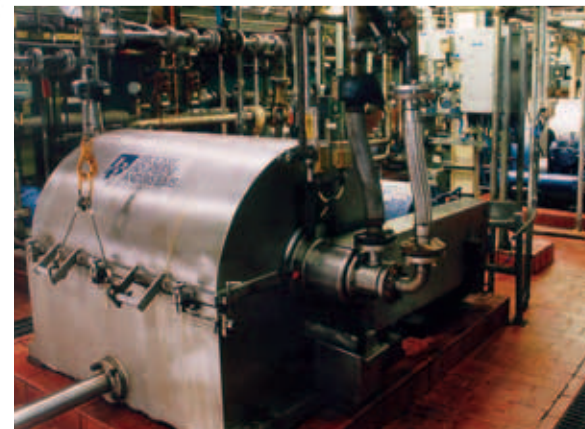
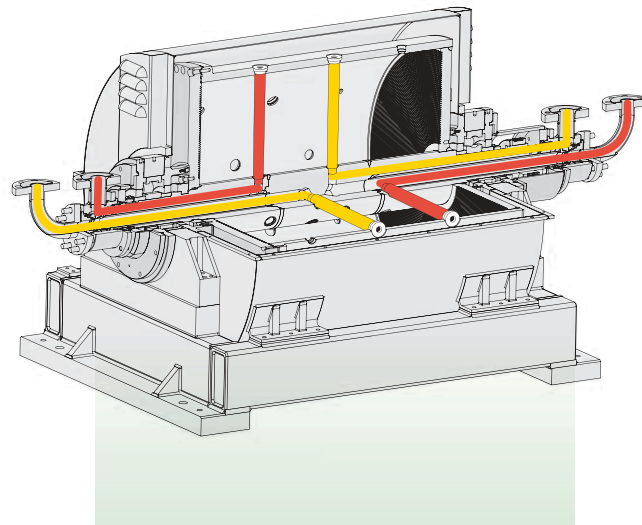
By combining centrifugal force with counter-current flow, B&P's Podbielniak (Pod) Extractor Centrifuges achieve high degrees of extraction and separation in a single machine. In simple terms, think of the Pod as several extractors/separators in one. Unlike gravity/pulse towers, mixer-settlers, and batch reactor tanks, the B&P Pod's high g-force design enables you to process more in less floor-space, at less power usage:

- A single unit provides 3-5 theoretical stages of extraction compared to alternatives that only produce 1-2.
- Improved extraction translates into lower solvent inventory and usage.
- Simple design minimizes maintenance and wear.
- Extraction and separation occur in a single unit to reduce overall capital expenditure.
- High clarification enables separation of liquids with specific gravity differentials as low as 0.01.
- Modular design is easily re-configured to meet changing process challenges.
- Available in food-grade and explosion-proof configurations to meet specific industry needs.

A simple idea, a better solution

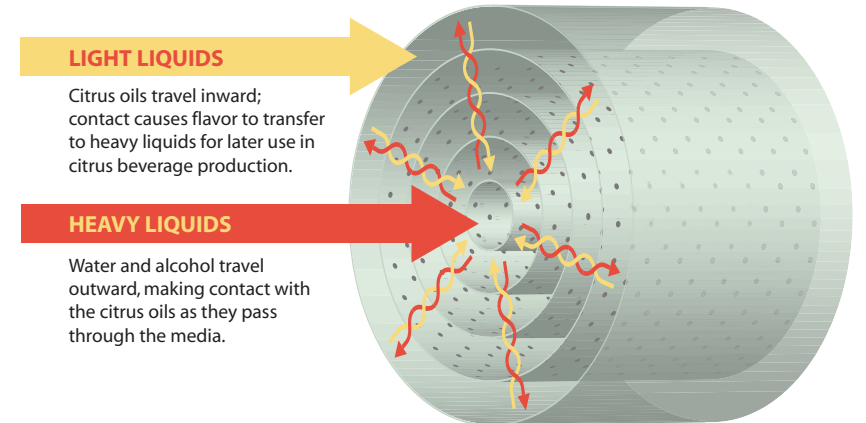
Inside the Pod are concentric, perforated bands. Heavy liquid is introduced inboard and flows outward. Light liquid is introduced outboard and flows inward.

As these liquids make their journey counter-currently through the bands and perforations mass transfer occurs and components from one stream transfer to the other.



How it works – flavoring application

Flavoring for citrus beverages can be very efficiently manufactured using the Pod. In this application, oils from lemons, limes, or oranges are introduced as the light liquid; a mix of water and alcohol are the heavy liquid. As the two liquids interact on their journey through the elements, the flavoring transfers to the heavier water/alcohol mix – which can be readily incorporated into beverages. The remaining oils are removed as waste product.



Real-world utility

B&P Pod extraction centrifuges are at work in thousands of applications worldwide including food & beverage, pharmaceuticals, specialty chemicals, mining/hydrometallurgy, and more.

Real-world knowledge

Our team has worked with thousands of processes in almost every imaginable industry. We'll apply this knowledge to configuring a Pod system that meets your specific challenges. B&P also operates a comprehensive test lab for feasibility studies, and our lab-scale methods readily scale to production levels.

Built strong

B&P Process specializes in building some of the world's most rugged, reliable industrial machinery. This rugged construction ensures a maximum uptime and a long life for your capital investment.



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A surprising range of potential applications

The Pod has proven to be a very versatile solution for a broad range of extraction, separation, wash, and reaction applications (and some that combine these processes). One Pod replaces multiple machines in many of these applications, and it's easily reconfigured to handle new tasks if your needs change.

Typical applications include:

- Penicillin
- Tylosin
- Erythromycin
- Fermentations
- Citric Acid
- Biodiesel Reaction & Washing
- Uranium
- Vanadium
- Aromatics Extraction
- Estrogen Extraction
- Solvent Extraction
- Ion Exchange
- Water Washing
- Liquid/Liquid Separation
- Hydrogen Peroxide



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