



NEWTRIENT SNAPSHOT

# Centrisys/CNP

## Decanter Centrifuge Technology



### BUSINESS OVERVIEW

Centrisys/CNP stands at the forefront of global innovation, specializing in cutting-edge decanter centrifuges, dewatering systems, and advanced technologies tailored for dairy, municipal, and industrial applications. The company is an award-winning technical leader, driving efficiency, safety, and performance breakthroughs. Based in Kenosha, Wisconsin, Centrisys prides itself as the only U.S. manufacturer focused on centrifuge technology. Centrisys engineers their technology to not only meet customer expectations, but to exceed them.

### PROJECT

#### TECHNOLOGY OVERVIEW

Applying 3,000 times the force of gravity, the decanter centrifuge is a proven technology for superior removal of suspended solids and nutrients from manure slurry. Operating at 2,000 to 4,000 rotations per minute (rpm), heavier solids move to the outer edges of the bowl and into the screw conveyer, while liquid components collect in the center. Decanter centrifuge technology can be integrated to fit farm-specific processes and objectives. Once optimized, the unit operates continuously as needed, eliminating the need for a full-time operator.

#### PROJECT SIZE

Centrisys decanter centrifuges are for farms with 1,000 to 10,000 cows. The capacity of manure slurry separation ranges from 5 gallons (pilot scale) to 700 gallons (full scale) per minute (gpm). Depending on size and incorporation, the decanter centrifuge uses 0.2 to 0.4 kW/gpm of electricity. The auto lube system, material weight, and dimensions vary across the models, providing flexibility for farms with diverse needs.

#### REQUIREMENTS

To effectively implement a decanter centrifuge system, farmers need designated space with cold weather protection and a level foundation. Access to a reliable power supply, water source, air connection, sufficient storage for solids and liquid effluent, and an optimal feedstock such as raw manure, digestate, and screened digestate is vital. If sand bedding is used, sand removal from feedstock is necessary. Adherence to regulations, thorough training, regular maintenance, monitoring, and record keeping ensure seamless operation.

### KEY CALL-OUTS



**Enhanced Profits:** Opportunity to sell the excess recovered solids as bedding or soil amendments for additional revenue.



**Optimized Yield:** Fine solids removal optimizes the application of liquid manure nutrients in irrigation systems, providing nutrient-rich solids as valuable crop fertilizers.



**Decreased Waste Storage Maintenance:** Solids removal lowers waste storage maintenance expenses such as dredging.



**Water Savings:** Recycling centrifuged liquids with low solids content reduces the need to acquire and treat water.

Findings are based on an evaluation conducted under a Conservation Innovation Grant awarded to Newtrient. To view a more detailed description of these results, visit the Centrisys centrifuge Evaluation Summary on the [Newtrient website](#).

## FINANCIAL OVERVIEW



### CAPITAL INVESTMENT & OPERATIONAL COSTS

As of 2023, a Centrisys centrifuge implementation costs an estimated \$400,000 for 1,000 cows and \$750,000 for 10,000 cows including the cost of controls, flow meter, and the centrifuge stand. A CS26-4DT decanter centrifuge for 10,000 cows has an estimated \$10,000 in electric and \$40,000 in maintenance costs, including machine rebuild annually. Under certain circumstances, Centrisys may rent out a system or provide a lease-to-buy program. It's essential to note that costs may vary due to project specifics, farm size, capacity, market conditions, and additional features.



### DOWNSTREAM BENEFITS

Dewatered solids can be sold or used on-farm as compost, soil amendments, or bedding, offering a potential source of added revenue. Additionally, dewatered solids can be used as feedstock in anaerobic digestion or biomass conversion. Extracted nitrogen and phosphorus from the liquid fraction is fit for use on-farm or sold as fertilizer.

## ENVIRONMENTAL IMPACT

### WATER QUALITY AND QUANTITY

Separated liquid effluent has a lower nutrient concentration for nitrogen and phosphorus, while the solids fraction is more nutrient dense. Therefore, the liquid has a reduced risk of runoff and leaching into surface and ground water during storage and field application, preventing water pollution and positively impacting water quality. Water consumption can also be reduced by recycling the liquid fraction as flush water for some systems.

### ODOR AND GASEOUS EMISSIONS

When compared with traditional equipment, the Centrisys centrifuge separates up to three times the total solids, typically leaving less than 1% total suspended solids in the effluent. This substantial removal of solids can contribute to a reduction in greenhouse gas (GHG) and odor emissions, when the organic matter is not held under anaerobic conditions during storage or is composted with other materials.

## NEWTRIENT'S 9-POINT TECHNOLOGY SCORING

### For Centrisys Decanter Centrifuge Technology

Visit the [Centrisys Centrifuge](#) page in Newtrient's Solutions Catalog.

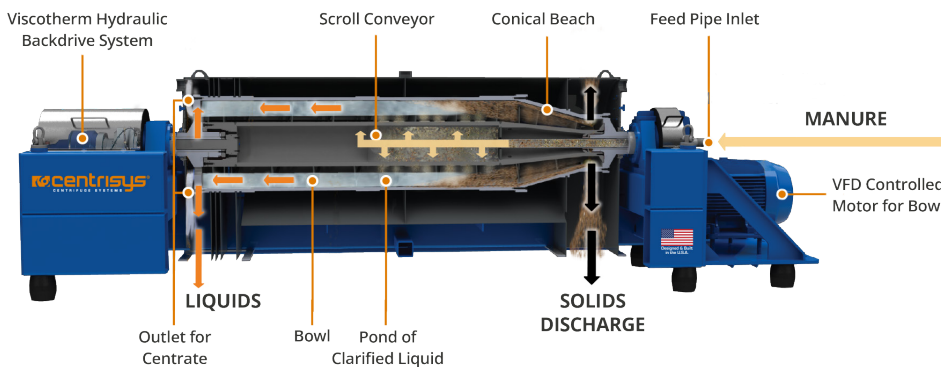


Each solution can earn up to nine points, one for each criterion. Colored numbers indicate fulfilled criteria.

- 1 | Operational History
- 2 | Operational Reliability
- 3 | Market Penetration
- 4 | Capital Cost
- 5 | Operations & Maintenance Cost
- 6 | Value Proposition
- 7 | Vendor Information Sharing
- 8 | Case Study
- 9 | Funding Availability

Discover Newtrient's technology evaluation process: [Learn more about Newtrient's 9-Point Technology Scoring System.](#)

### 2-PHASE CENTRISYS DECANTER CENTRIFUGE SYSTEM



Newtrient's mission is to reduce the environmental footprint of dairy while making it economically viable to do so.

**Newtrient, LLC**  
 10255 W. Higgins Rd. Suite 900  
 Rosemont, IL 60018 USA  
 847-627-3855  
[info@newtrient.com](mailto:info@newtrient.com)

**Centrisys/CNP**  
 9586 58th Place  
 Kenosha, WI, USA  
 262-747-2384  
[info@centrisys-cnp.com](mailto:info@centrisys-cnp.com)