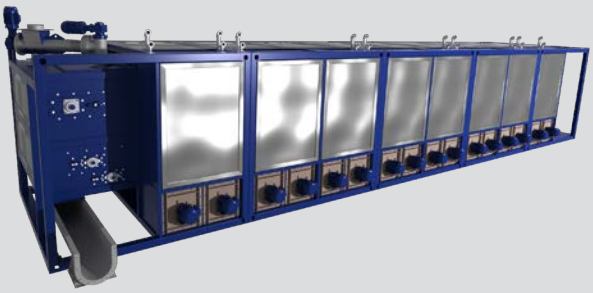
Sludge Reduction Technologies for Plants of all Sizes

Leveraging proven solutions to meet the increasing demands of sludge management



One Company. Two Teams. A Proactive Approach.

Since 1987, Centrisys has provided decanter centrifuge equipment and service. It's through continuous centrifuge development that the company has evolved as a leader in sludge dewatering and thickening. In 2014, Centrisys launched CNP Technology Water and Biosolids for nutrient management and advanced sludge treatment processes. The Centrisys/CNP team provides complete biosolids management solutions for municipal and industrial clients.

+ More

- Improve sludge dewaterability
- Increase nutrient recovery
- Improve plant efficiencies
- Increase energy efficiency
- Increase biogas production
- Improve plant safety
- Improve downstream processes

- Less

- Lower cost of ownership
- Reduce landfill & disposal costs
- Reduce operation & maintenance costs
- Reduce chemical & energy costs
- Reduce digester capacity
- Smaller footprint

Biosolids management today is faced with challenges that are matched by unprecedented opportunities. A key source of these opportunities is the expanded view of wastewater and solids as renewable resources.

Source: EPA

Discover more at **Centrisys-CNP.com**

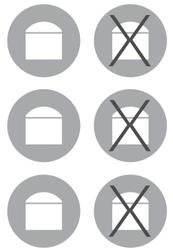
centrisys cnp

The Centrisys/CNP Portfolio Supports Global Sustainability

1 THK Series*
Primary Sludge Thickener

THK Series is designed specifically to achieve high performance thickening of biosolids. **It is not a modified dewatering centrifuge.**

- Enclosed system reducing odors and gases
- Hygienic operation – safer for operators
- **Digester volume cut in half by doubling the feed concentration**
- Digester heating burden greatly reduced
- Greater G-volume
- Independent control of liquids and solids weir



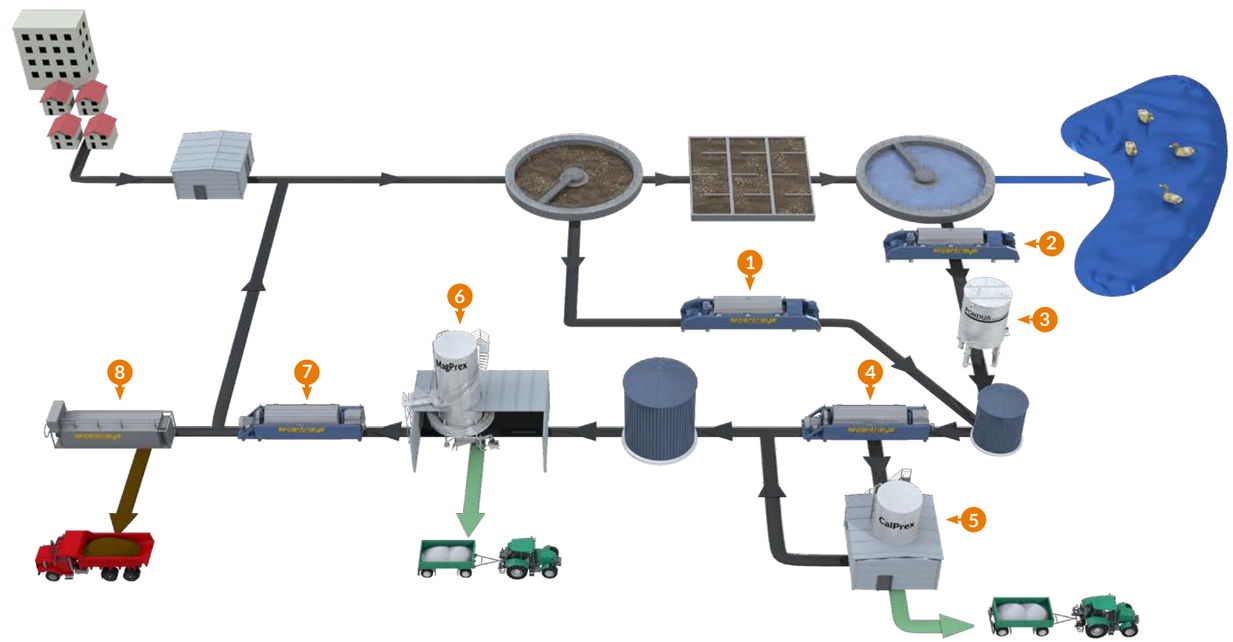
**Also see information in #3.*

THK CASE STUDY

Steven M. Clouse San Antonio Water System
San Antonio, Texas | 80 MGD

Problem: The plant had four aging GBTs that could not handle the increasing flows. The feed was a blend of WAS and primary sludge from two plants - SM Clouse and Leon Creek. The GBTs used 5.5 lbs/ton of polymer. A 50% reduction was a key factor in the plant's sludge thickening choice.

Solution: The plant installed (2) THK600s in 2019, doubling its thickening capacity and reducing polymer consumption to 2.5 lbs/ton, a savings of over $100,000 per year.



2 THK Series*
Waste Activated Sludge (WAS) Thickener

THK Series sludge thickener is simple to operate with minimal operator attention and has the **lowest total cost of ownership** in the industry.

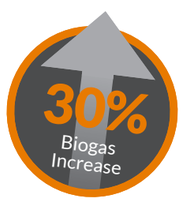
- 50% less power consumption
  (compared to standard dewatering centrifuges)
- **Proven no polymer required**
- No conical = greater comparative capacity
- Smallest and most efficient footprint
- Reduce installation costs by 35-50% ($/gpm)
- Proprietary hydro-pneumatic control of cake solids

**Also see information in #1.*

3 PONDUS™
Thermal Hydrolysis Process (THP)

PONDUS, an alkaline process, uses low grade heat (140 °F to 160 °F) and sodium hydroxide for sludge hydrolysis.

- No heat exchangers needed to cool sludge
- No pressure vessel required
- Saturated steam option for sludge above 7% total solids (TS) or with high viscosity
- Minimal equipment needed: high-efficiency heat exchanger, progressive cavity pumps, reactor operating under atmospheric pressure
- **Increase biogas production up to 30%**
- Reduce biosoilds disposal costs up to 30%
- Reduce polymer consumption at dewatering up to 20%



> *In one year's time, the utility's biosolids facilities were transformed to a state-of-the art biosolids and energy showpiece. Complete cooperation of all project partners was integral to achieving success on this challenging project.*
>
> **Ed Nevers**
> Donohue & Associates Senior Vice President &
> Kenosha Water Utility Project Manager

4 CS Series*
Pre-Digestion Dewatering Centrifuge

CS Series Dewatering Centrifuge, the most efficient in the industry, is designed and built from what was learned in the field by servicing competitors equipment in both municipal and industrial applications.

- **The Rotodiff® hydraulic scroll drive—our standard backdrive technology from day one**
- Highest G-volume and torque capacity
- Increase solids handling
- Reduce polymer consumption
- Continuous operation
- Lowest installed horsepower
- Driest cake
- Customizable for unique application requirements

**Also see information in #10.*

5 CalPrex®
Pre-Digestion P-Recovery as Brushite

CalPrex maintains a 6.5 pH, recovers phosphorus as a brushite crystal with up to 41% P_2O_5 and can minimize digester and sidestream P-loading by over 50%.

- Reduce disposal costs up to 30%
- **Divert over 70% of the soluble P from the digester**
- Reduce up to 50% of the total P in biosolids
- Reduce struvite buildup in the digester
- No ammonium required
- Create a valuable fertizer from brushite

CALPREX WEF PROJECT

Nine Springs Treatment Plant
Madison, Wisconsin | 42 MGD

WRF Pilot Project: The CalPrex pilot, a 10 gallon per minute system, was a joint venture with 11 organizations. WRF published a peer-reviewed study to elaborate on the CalPrex process performance, benefits, costs and larger scale impact.

Results: CalPrex solubilized 66% of the feed phosphorus, mineralized 90% of the feed phosphorous, recovered 70% of the feed soluble phosphorus as brushite and recovered 45% total phosphorus.

6 MagPrex™
Post-Digestion P-Recovery as Struvite

MagPrex is the most cost-effective solution, giving all sized plants the affordable option to control struvite and recover phosphorus. It expands the nutrient recovery focus beyond the production of struvite.

- Reduce and stabilize nutrient loading in the return sidestream to the wastewater treatment line
- **Improve sludge dewaterability**
- Reduce polymer consumption up to 30%
- Reduce maintenance up to 50%
- No sodium hydroxide required
- Reduce struvite precipitation by harvesting, sequestration or centrate recovery

MAGPREX CASE STUDY

Drake Water Reclamation Facility
Fort Collins, Colorado | 18 MGD

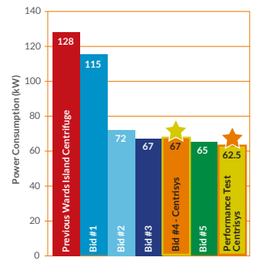
Problem: The Colorado Department of Public Health & Environment (CDPHE) implemented on of the most stringent phosphorous limits within the US. The plant had up to 3 mg/L of phosphorus.

Solution: Since installation of MagPrex in October 2020, the plant has achieved very low effluent phosphorus limits, below 0.5 mg/L. MagPrex reliably removes more than 90% of orthophosphate from the phosphorus recycle loop going back to the front of the plant.

7 CS Series*
Post-Digestion Dewatering Centrifuge

CS Series can provide an ROI in as little as 1.5 years with a decrease in maintenance and operating costs.

- **Lowest measured energy consumption****
- Reduce operating and maintenance costs
- Reduce disposal costs
- Highest torque to weight ratio

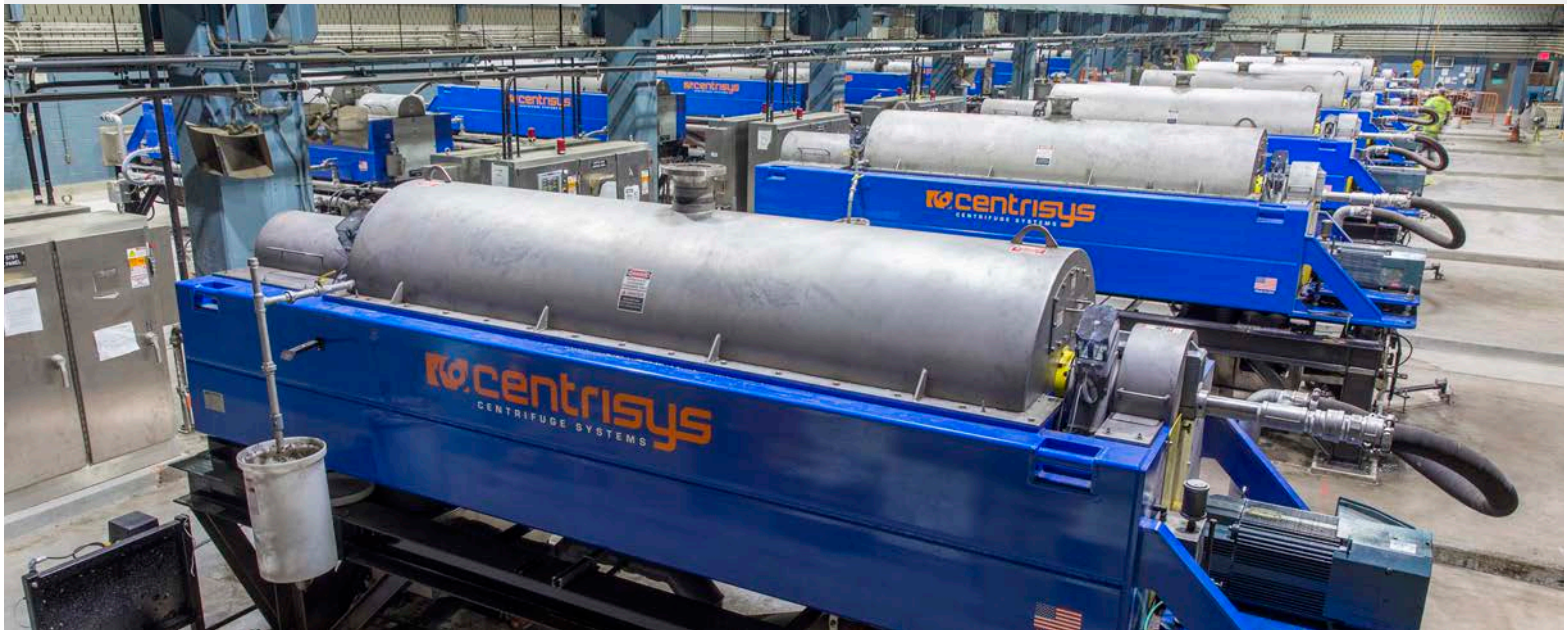


**Also see information in #6.*
***Based on NYC Wards Island performance test in 2017.*

8 DLT Series
Low-Temperature Belt Dryer

DLT Series is a closed-loop belt, low-temperature belt dryer that reduces biosolids volume and generates Class A biosolids.

- USA parts and service: Centrisys DLT is designed, built and focused on USA plants
- Smallest footprint: increase flexibility for plant design and expansion
- Enhanced saftey: designed for plant operators
- Uncomplicated: designed for simple maintenance



> *The upgrade has resulted in savings of $1.1 million per year in power, polymer and biosolids disposal costs by improving dewatering operational efficiencies at the WI WWTP. In addition, the upgrade increased the dewatering capacity at Ward's Island WWTP by 50%, which allows the New York City Department of Environmental Protection to decommission a dewatering facility at one of its other WWTPs.*

CDM Smith WEFTEC 2018 Presentation
"How to save $1M per year in operational costs: efficiencies in sludge dewatering"

> *While the technologies each individually bring value, it is their holistic approach, as well as the collaboration of partners involved, that make this project special. The key for this successful initiative is trust among partners – Kenosha Water Utility and Centrisys/CNP leaders – and trust from the City of Kenosha in these leaders to deliver.*

Ed St. Peter
Former Kenosha Water Utility General Manager

9586 58th Place | Kenosha, WI 53144 USA | +1 (262) 654-6006 | info@centrisys-cnp.com
North America | South America | Europe | Middle East | China

© 2022 CENTRIFUGE-SYSTEMS, LLC