



 centrisys  
cnp



Founded  
in Service +  
Repair for  
All Brands





Founded in Service + Repair

# Innovative Approach to Centrifuge Service + Repair



Service



Repair



Parts

Founded in Service + Repair

# Global Locations

⊙ Manufacturing, Sales,  
Service + Repair Center

○ Service + Repair Center





# Key Milestones

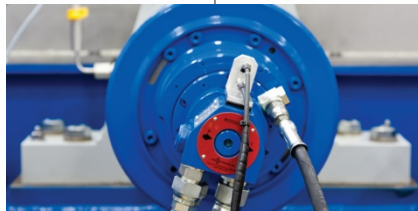


## Key Milestones



**1987**

Founded based upon centrifuge service and repair; Centrisys Corporation started in Libertyville, Illinois with three employees who all still work at the company



**1988**

Began Viscotherm partnership and installed our first Rotodiff® hydraulic scroll drive retrofit



**1989**

Built our first CS Series dewatering centrifuge



**1999**

Relocated our headquarters to Kenosha, Wisconsin with a 21,000 sq. ft. building



**2001**

Expanded our Kenosha, Wisconsin headquarters building to 45,000 sq. ft.



**2006**

Went global – first dewatering centrifuge installations in Germany, China and South America

Developed the CS18-3 dewatering centrifuge for petroleum process applications

## Key Milestones



**2007**  
Established a Ofersheim,  
Germany repair and service  
center



**2010**  
Build a second building in Kenosha,  
Wisconsin for new build equipment,  
expanding our campus to 66,000 sq. ft.



**2012**  
Acquired a third building in Kenosha,  
Wisconsin to warehouse \$15 million in spare  
parts, expanding our campus to 95,000 sq. ft.



**2009**  
Began Chengdu Tianbao Heavy Co. Ltd partnership  
and established a joint venture facility for production,  
sales, repair and service in Chengdu, China

Established at the Viscotherm – Singapore location a  
repair and service center



**2011**  
Build first THK Series sludge  
thickener for waste activated  
sludge (WAS)



**2013**  
Received WEF Innovative  
Technology Award for the THK  
Series sludge thickener

Michael Kopper named as Kenosha  
County Entrepreneur of the Year



## Key Milestones



### 2014

Launched CNP – Technology Water and Biosolids Corporation for nutrient removal and recovery

Acquired exclusive North American distribution for AirPrex®, a post-digestion P-recovery process

Acquired exclusive North American distribution for PONDUS™, a Thermal Hydrolysis Process (THP)

Began Somerset Coal exclusive partnership and designed and manufactured a Sub325® centrifuge for the coal fines industry

Build first THK Series sludge thickener for primary sludge for Kenosha Water Utility Optimization project



### 2016

Began Veolia partnership with a World Wide Supplier Agreement

Began E. & J. Gallo Winery partnership for wine production with CS26-4 dewatering centrifuges and minimization with THK600 sludge thickeners

Received U.S. Environmental Protection Agency (EPA) Nutrient Recycling Challenge Award for AirPrex



### 2017

American Council of Engineering Companies (ACEC) Gran Award Winner for the Kenosha Water Utility Optimization Project for CS Series, THK Series and PONDUS; recognized as a top project for the state of Wisconsin and nationally recognized in Washington D.C.

W&WD Top Project for the Kenosha Water Utility Optimization Project for CS Series, THK Series and PONDUS

Acquired exclusive worldwide licensing and distribution for CalPrex®, a pre-digestion P-recovery process, from Nutrient Recovery & Upcycling

Completed the Wards Island Wastewater Treatment Plant, New York City installation of (16) CS26-4 centrifuges and demonstrated better than specification performance results.



### 2018

Developed and designed a 4,000xG dewatering centrifuge

First North American MagPrex installed at Liverpool WWTP in Medina, Ohio and Howard County in Savage, Maryland

Participated in The Water Research Foundation (WRF) with CalPrex to demonstrate the phosphorous removal and recovery

Named Utility of the Future Today Recognition Program for the Kenosha Water Utility Optimization Project for CS Series, THK Series and PONDUS



## Key Milestones



### 2019

Completed a 35,000 sq. ft. expansion to our second building in Kenosha, Wisconsin, expanding our campus to 130,000 sq. ft.

Added a first of its kind underground balancing bunker which has a Schenk balancing machine, 12" reinforced walls and a 28" thick machine bed to ensure safety during the balancing process

Named CIOReview for the 20 Most Promising Metals and Mining Technology Solution Providers



### 2020

Introduced MagPrex, the exclusive North American post-digestion P-recovery process, which replaces AirPrex

Installed first hydrograv adapt Variable Inlet System in Hampton Roads, Virginia

Completed installation for (16) CS26-4 centrifuges at Hunts Point Wastewater Resource Recovery Facility in the south Bronx, New York

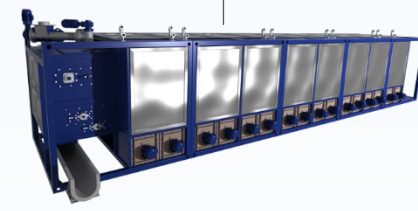
Installed MagPrex and (8) CS26-4 decanter centrifuges at the Metro Water Recovery in Denver, Colorado

Installed MagPrex at the Drake Water Reclamation Facility in Fort Collins, Colorado

Installed (5) CS30-4DT dewatering centrifuges at Inland Empire Utilities Plant in Chino, California

Installed (2) THK600 sludge thickeners at Steven M. Clouse Water Recycling Center in San Antonio, Texas

20+ CS30-4 global installations for Somerset International



### 2021

Secured an order for (3) THK350 sludge thickening centrifuges at the Department of Public Works – Environmental Protection Division's Solids Train Project in Manchester, New Hampshire

Secured an order for (2) CS21-4HC centrifuges at the Stamford Water Treatment Plant Dewatering and Chemical Receiving Facility in Stamford, Connecticut for Aquarion Water Company

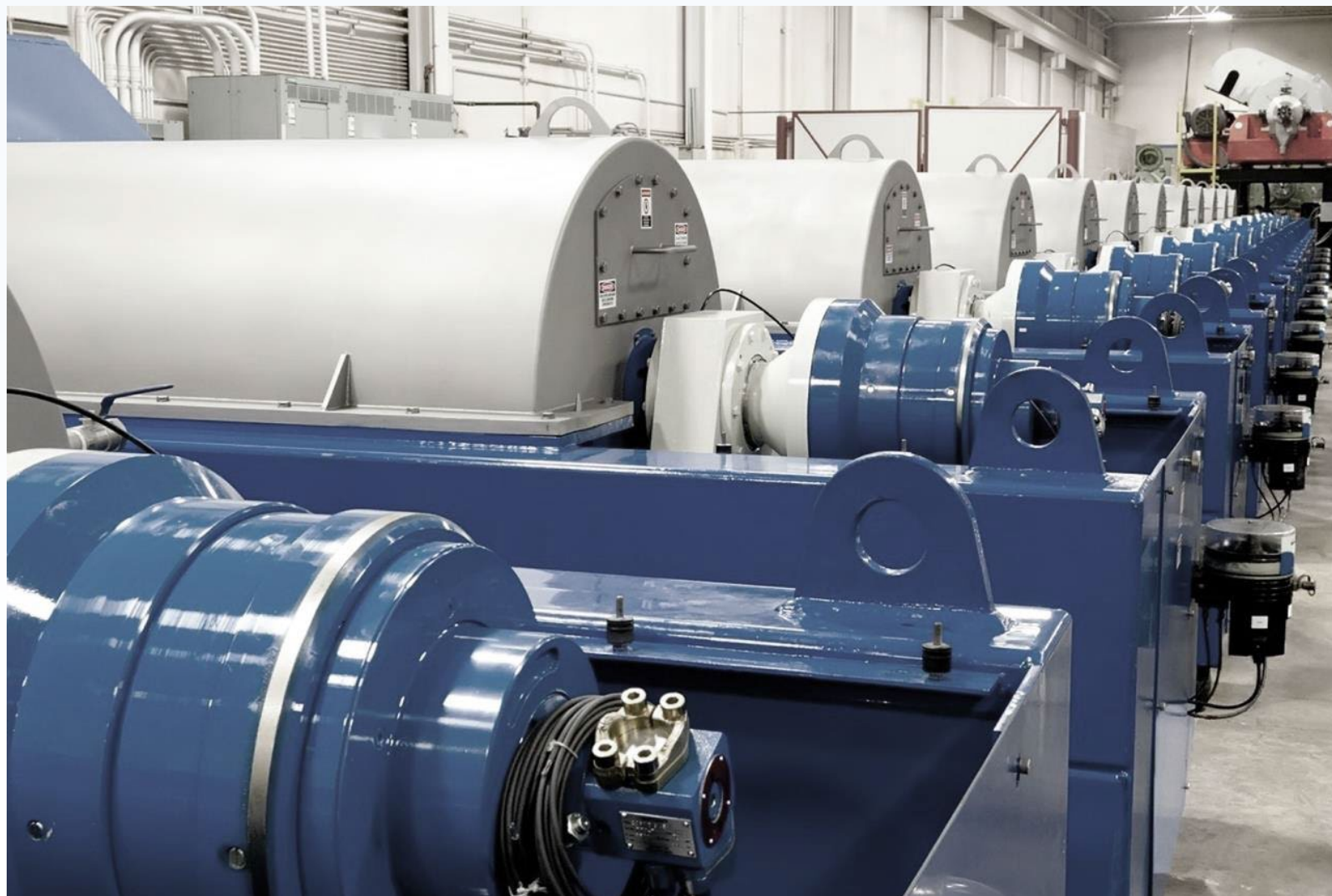
Secured an order for a CS26-4DT at the Maryland Food Center Anaerobic Digestion Facility in Jessup, Maryland for Bioenergy Devco

Secured an order for MagPrex at Meridian Wastewater Plant in Meridian, Idaho

Introduced the DLT Series, a dual belt, low-temperature belt dryer

# Rotodiff® Hydraulic Backdrive

The Most  
Efficient in  
the Industry





# The Hydraulic Advantage



### Powerful + Precise

Achieves the highest torque-to-weight ratio with the best process control. The direct measurement of scroll torque and speed allows for immediate response to process changes.



### Increases Capacity

Precise speed control and highest torque capabilities allow for increased through-put capacities.



### Eliminates the Gearbox

By using hydraulics, we simplify the design and radically reduce the number of moving parts and wear components. Uses only slow moving parts-creates less friction.



### Lowest Energy Consumption

Power is not lost. Uses only the energy needed to drive the scroll. It is independent of the main drive therefore no energy from the main drive is wasted.

## Hydraulic Scroll Drive

# The Hydraulic Advantage

Competitor ranks the hydraulic backdrive as the best-in-class solution.



GEA  
Mechanical Separation  
Division

Westfalia Separator



Take the Best - Separate the Rest

### Hydro-drive

The hydrostatic drive works in a way which is similar to that of the differential gear drive. The difference is to be seen in the design. Instead of the mechanical gear, a rotating hydromotor is installed; this is supplied with hydraulic regulation by a pump unit. Because the differential speed is proportionate to the conveyed quantity of oil, automatic regulation can be provided without any problem.



CD force  
Technology Makes the Difference



# Why NYC Chose Centrisys for Two Treatment Plants



Wards Island Wastewater Treatment Plant  
2018 Installation

NYC Wards Island

CDM Smith  
Matrix

(36) CS26-4 centrifuges in 2 NYC  
WWTPs by 2020.

Table 5-2 Centrifuge Evaluation Matrix																
Basis for Analysis, assumed the same for all vendors:																
Inlet Sludge Rate per unit 250 gpm @ 1.7% Capture Efficiency Greater than 95% Centrate Quality 1000 mg/l Polymer Use 32 lb/ton (active basis), diluted to a 0.25% solution Noise 85 dba																
Notes: Shaded cells should be equal to 100 Yellow Cells Require Input																
Green background means the score was calculated using the standard deviation procedure If the criteria doesn't have a green background, that means the score is a subjective input																
Manufacturer					Alfa Laval			Andritz			Andritz			Centrisys		
Model					ALDEC G2-115			CP4-1.2			D61X			CS 26		
Criteria					Value			Value			Value			Value		
					Score			Score			Score			Score		
					Weighted Score			Weighted Score			Weighted Score			Weighted Score		
Centrifuge Features					20											
G-Volume					5	50	10	310,601	1.69	16.87	453,183	4.40	43.96	363,529	2.69	26.93
Back Drive Type/Gearbox/Torque					5	20	4	Direct/ 2 stg planetary/ 20kNm	2.83	11.31	Regen/ 1 stg cycloid/ 20 kNm	2.83	11.31	Regen/ 1 stg cycloid/ 20 kNm	2.83	11.31
Bearing Lubrication System					5	15	3	Grease	4	12.00	Recirculated forced oil	3	9.00	Recirculated forced oil	3	9.00
Bowl Design					5	5	1	CC Duplex, 10 deg. wear strips	3	3.00	CS, 10 deg. grooves	2	2.00	CC Duplex, 11 deg. grooves	3	3.00
Conveyor Design					5	5	1	open, progressive	3	3.00	open, progressive	3	3.00	CC Duplex, 15 deg. strips	4	4.00
Special Features					5	5	1	power plates, direct torque measurement	2	2.00	None	0	0.00	open, constant	3	3.00
														solids evac. stationary bowl, reverse rotation possible, direct torque measurement	3	3.00
Subtotal for Category						100	20			48.18			69.26		53.23	77.88
Performance						20										
Power Consumption (kW)					5	40	8	67	3.48	27.83	115	1.22	9.80	72	3.24	25.95
Cake Solids (%)					5	60	12	28%	3	36.00	28%	3	36.00	28%	3	36.00
Polymer Consumption (active lb/ton)					5	0	0	30	3.45	0.00	32	1.21	0.00	30	3.45	0.00
Centrate Quality					5	0	0			0.00			0.00		0.00	0.00
Subtotal for Category						100	20			63.83			45.80		61.95	63.83
Installation						15										
Structural Considerations					5	30	4.5	minor	4	18.00	None required	5	22.50	new support beams, new chutes	3	13.50
Mechanical Considerations					5	30	4.5	feed at opp end, new chute transition fittings	2	9.00	None required	5	22.50	feed same end, new chute transition fittings	4	18.00
Construction Duration					5	20	3	Installation estimate 4 weeks for 3 machines. Estimated 18 month total duration.	5	15.00	Long load on first unit. Installation estimate 4 weeks for 3 machines. Estimated 24 month total duration.	4	12.00	Structural modifications required. Installation estimate 8 weeks for 3 machines. Estimated 24 month total duration.	3	9.00
Delivery Time					5	20	3	First unit in approximately 9 months (includes submittals). 2 units per week thereafter.	4	12.00	First unit in 12 months (includes submittals). 2 Units per month thereafter	2	6.00	First two units in 10 months (includes submittals). 2 - 4 units per month thereafter	3	9.00
Subtotal for Category						100	15			54.00			63.00		49.50	49.50
Operations and Maintenance						25										
Service Staff					5	15	3.75	7 field/ 30 in VA	3.25	12.19	30	3	11.25	30	3	11.25
Major Parts Stock, Repair, Overhaul Location					5	15	3.75	Chesapeake, VA (Approximately 350 miles)	3.39	12.72	Scott Depot, WV (Approximately 360 miles)	2.71	10.17	Scott Depot, WV (Approximately 360 miles)	2.71	10.17
Gearbox Overhaul Frequency					5	20	5	20000 hr	4.51	22.54	12000 hr	2.10	10.48	12000 hr	2.10	10.48
Bearing Lubrication System					5	15	3.75	auto greaser, 1 qt	2	7.50	forced oil, large reservoir	3	11.25	forced oil, large reservoir	3	11.25
Weight of bowl/scroll/Weight of Gearbox					5	10	2.5	4400/660 lb	4	10.00	5300/993 lb	2	5.00	7100/993	3	7.50
Reserved					5	0	0			0.00			0.00			0.00
Years model has been Manufactured					5	25	6.25	10	4.21	26.29	5	2.84	17.72	7	3.38	21.15
Subtotal for Category						100	25			91.24			65.87		71.79	75.96
Cost						20										
Centrifuge Budget Cost					5	15	3	\$7,930,000	2.83	8.49	\$8,970,000	1.60	4.80	\$7,995,000	2.75	8.26
Estimated Facility Upgrade Capital Cost					5	20	4	\$40,022,000	2.76	11.02	\$42,779,000	1.74	6.95	\$40,393,000	2.62	10.48
Estimated Annual Power/Chemical Cost					5	10	2	\$4,024,000	3.47	6.94	\$4,390,100	1.22	2.43	\$4,050,400	3.31	6.62
Estimated Cake Disposal Cost					5	30	6	\$18,466,000	3	18.00	\$18,466,000	3	18.00	\$18,466,000	3	18.00
Estimated Payback Period					5	25	5	16.2	3.43	17.14	23.0	1.32	6.62	17.7	2.96	14.79
Subtotal for Category						100	20			61.60			38.80		58.14	75.11
Total Score						100	100			318.84			282.72		294.62	342.29



NYC Wards Island

# Wards Island Performance Test

The New York DEP randomly selected Centrisys CS26-4 decanter centrifuges #5703 and #5705, from the 10 installed centrifuges at the time, to conduct the 48-hour performance test.

	Flow Rate [GPM]	Cake Solids [% TS]	Polymer Dose [lb/dry ton]	Capture Rate [% w/w]	Total Power [kW]
Bid Specs	250	26%	36	95%	67
Unit 5703	252.5	26.7%	29.8	99%	62.53
Unit 5705	252.5	27.1%	28.2	99%	62.47
Previous Centrifuge Average	191.5	25.15%	17.63	0	118.56

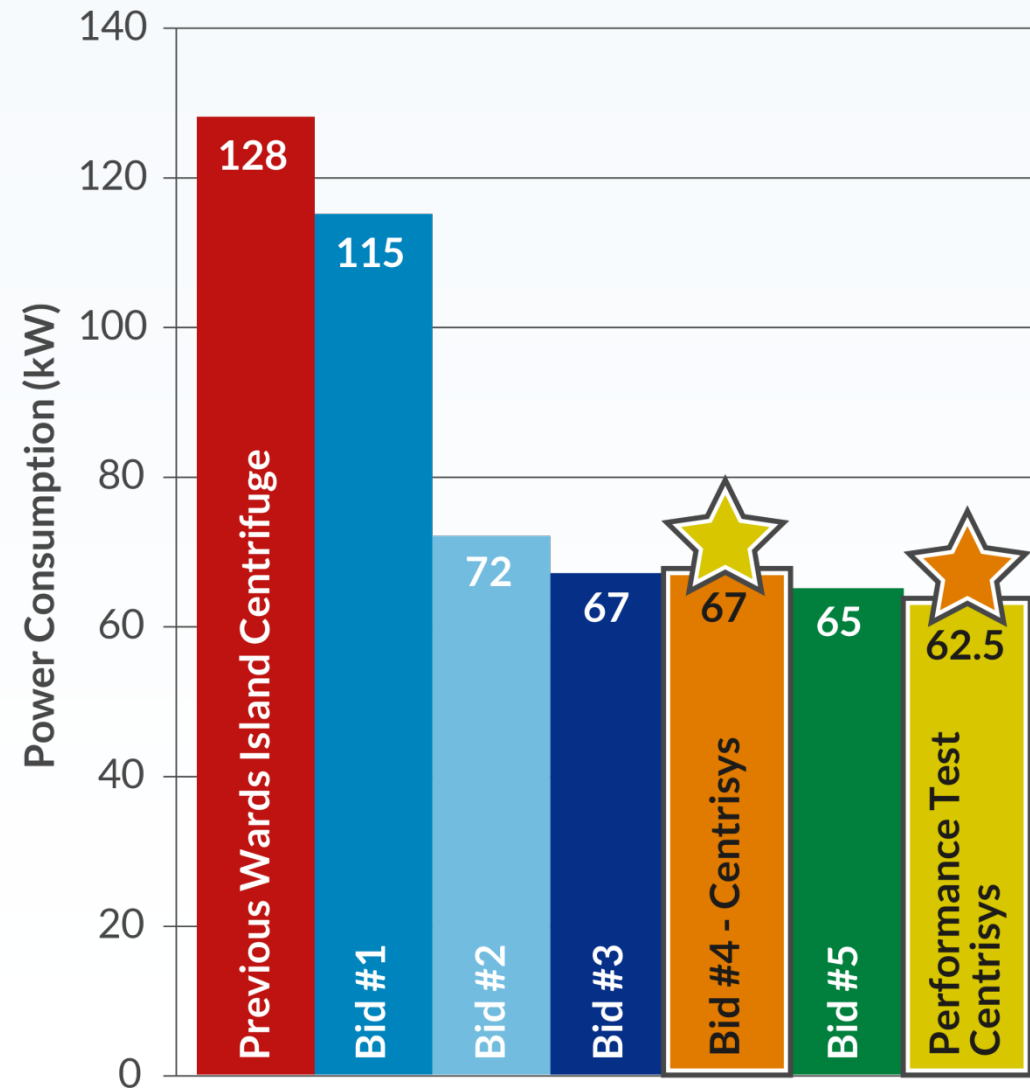
Data from July 2017 test.

NYC Wards Island

# Wards Island Performance Test – Power Consumption Results

A drastic 50% power reduction, compared to the old centrifuges, was maintained while exceeding performance specifications.

Data acquired from the NYC Wards Island Process Control Laboratory.

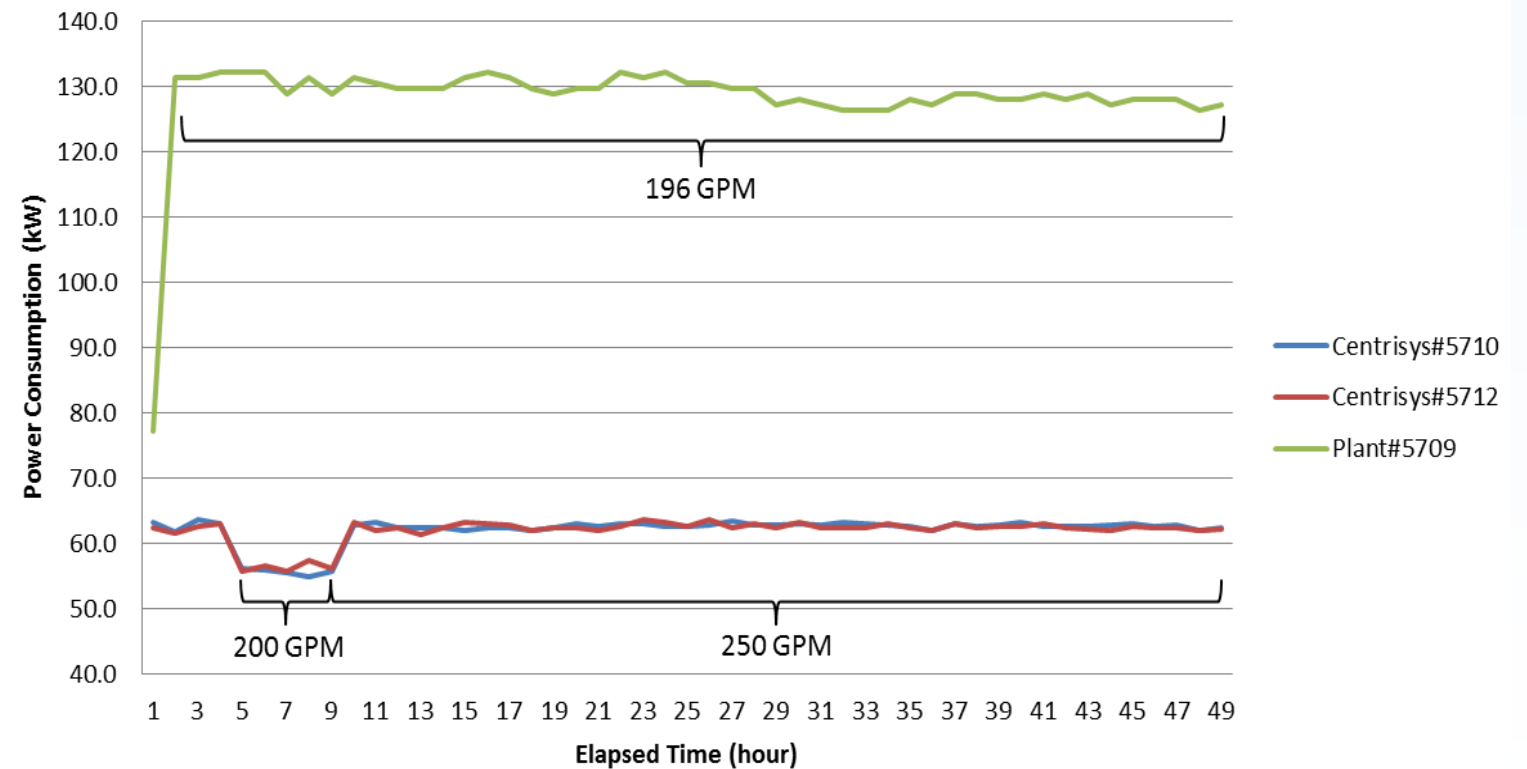




NYC Wards Island

# Wards Island Performance Test

This translates to an annual power savings of \$500,000.



Data from June 2017 test.

## NYC Hunts Point

# Arcadis Matrix



ARCADIS AMERICA, INC. A SUBSIDIARY OF ARCADIS U.S. INC.

Table 1: Evaluation Criteria and Weighting

Evaluation Item	Category	Category Weight	Value Desired	Unit
A-1	Calculated Present Worth of 20-Year Lifecycle Cost	30	Lower Value Desired	\$
A-2	Guaranteed Power Consumption Present Worth of 20-Year Lifecycle Cost (Based on Info. Item I-1)	15	Lower Value Desired	\$
A-3	Process Present Worth of 20-Year Lifecycle Cost (Based on Info. Item I-2)	15	Lower Value Desired	\$
B-1	G-Volume at 3,000 G-Force (Based on Info. Item I-3)	10	Higher Value Desired	G-Gallon
B-2	Sigma at 3,000 G-Force (Based on Info. Item I-4)	10	Higher Value Desired	In <sup>2</sup>
C-1	Scroll Drive Torque Rating (Based on Info. Item I-5)	10	Higher Value Desired	Ft.-Lbs.
C-2	Frame-to-Rotor Weight Ratio (Based on Info. Item I-6) <sup>1</sup>	10	1.00	Unit-less

**Scoring:** Bids were evaluated and scored based on submitted information, without consideration of exceptions or conditions, which, if negotiated, could affect the results of the evaluations and scoring. Refer to the "responsiveness of Centrisys's Bid" and "Other Bids Received" sections, below, regarding exceptions and conditions included with each Bid.

Results of our evaluations and scoring of the Bids are presented in detail in the enclosed table titled, "Evaluation and Scoring of Bids". A summary of the scores is presented in Table 2 below:

Table 2: Summary of Bid Evaluation Scores

Bidder	Score <sup>1</sup>
Centrisys	352.43
Andritz	301.30
GEA Westfalia	283.29
Alfa Laval	262.98

<sup>1</sup> See the discussion, on the following page, on frame-to-rotor weight ratio information submitted and the magnitude of its effect on scores.

## Hunts Point Wastewater Treatment Plant 2019 Installation



NYC Hunts Point

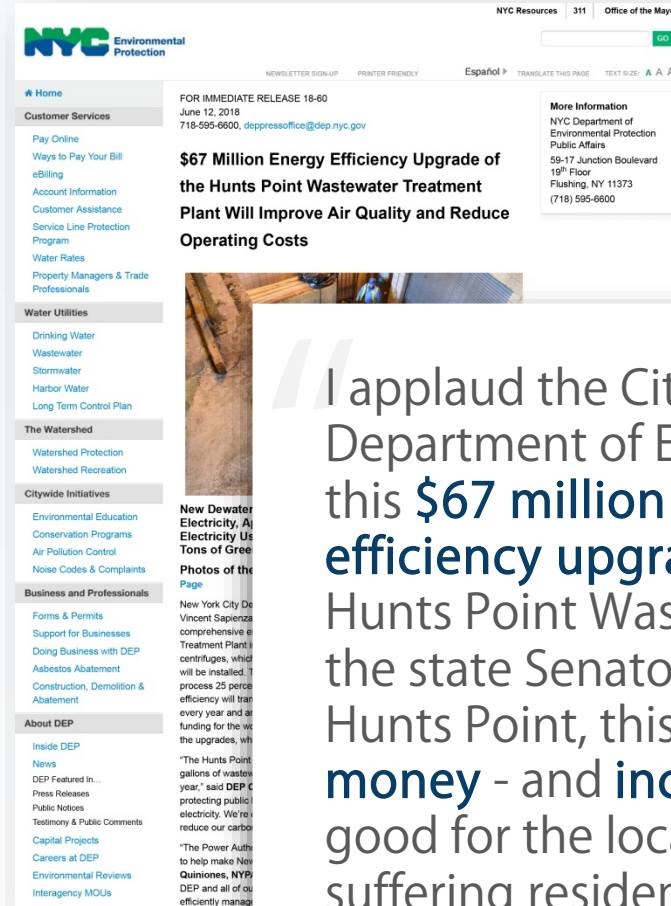
# Hunts Point Acceptance Test

	Flow Rate [GPM]	Cake Solids [% TS]	Polymer Dose [lb/dry ton]	Capture Rate [% w/w]	Total Power [kW]
Bid Specs	175	≥29%	≤25	≥94%	60
Unit 5703	176	30.7%	22.8	98.3%	53.7
Unit 5705	175	30.1%	22.5	97.9%	54
Previous Installed Centrifuge	146	27.5%	263.6	92%	102.1

Data from April 2019 test.



# NYC Environmental Protection Press Release



I applaud the City, and specifically the Department of Environmental Protection, for this **\$67 million comprehensive energy efficiency upgrade** that has begun at the Hunts Point Wastewater Treatment Plant. As the state Senator whose district includes Hunts Point, this upgrade will not only **save money** - and **increase energy output**, but is good for the local environment and its long-suffering residents by **reducing greenhouse gases**.

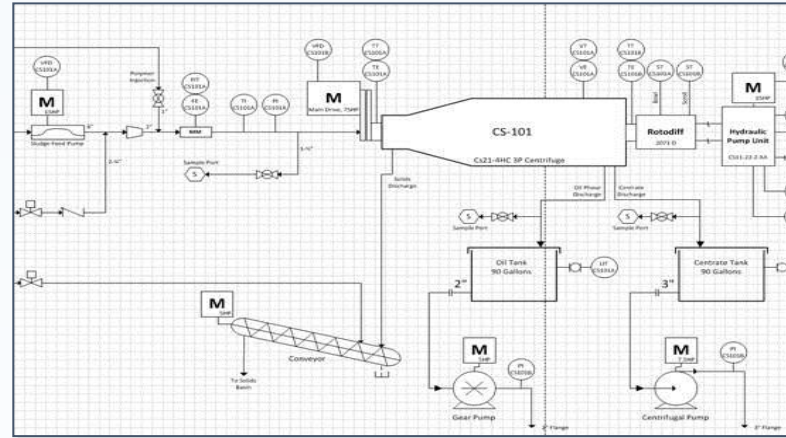
*--State Senator Luis Sepulveda*

# Turning Innovation into an Industry Standard

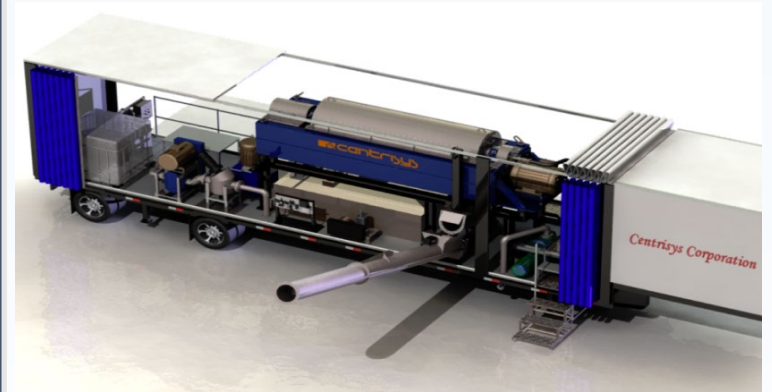


Innovation

# Complete Process Development Capabilities



Concept



Design



Reality



Innovation

# Doing More with Less

# Advanced Biosolids Treatment for the Future



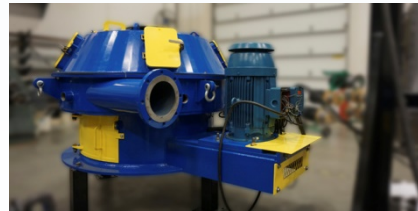
**THK Series  
Sludge Thickener**  
Polymer Free Thickening



**Kenosha Energy Optimization  
Resource Recovery Project**  
CS Series | THK Series – WAS  
THK Series – Primary | PONDUS



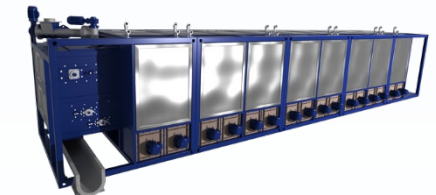
**CNP – Technology Water  
and Biosolids**  
MagPrex™ | CalPrex™  
PONDUS™



**CD Series  
Cuttings Dryer**



**Balancing Bunker**  
2019 “State-of-the-Art”



**DLT Series**  
Low-Temperature  
Dual Belt Dryer

Innovation

# Custom Centrifuge Designs for Industry Specific Applications



**Landfill Leaching**  
Dolphin/Veolia/Waste  
Management  
Skid Systems



**Oil Field Services**  
Schlumberger  
4,000xG Centrifuge



**Fine Coal Tailings + Minerals**  
Somerset International  
Sub325®



**Manure Management**  
CS (DT Model)



**Food + Beverage**  
Gallo Wine  
CS + THK Series



**Oil + Gas**  
CS18-3 Mobile Trailer System  
(2) CS18-3 Centrifuges

Innovation

# Custom Designs for Industry Specific Applications



**Steel Applications**  
Accelor Mittal  
CS30-4 Skid System



**Ethanol + Biofuels**  
Raizen (Brazil)



**Rendering +  
By-Product Recovery**  
JBS Swift



**Mining + Minerals**  
Copper/Chrome Tailings  
(South Africa)  
CS30-4 T Model



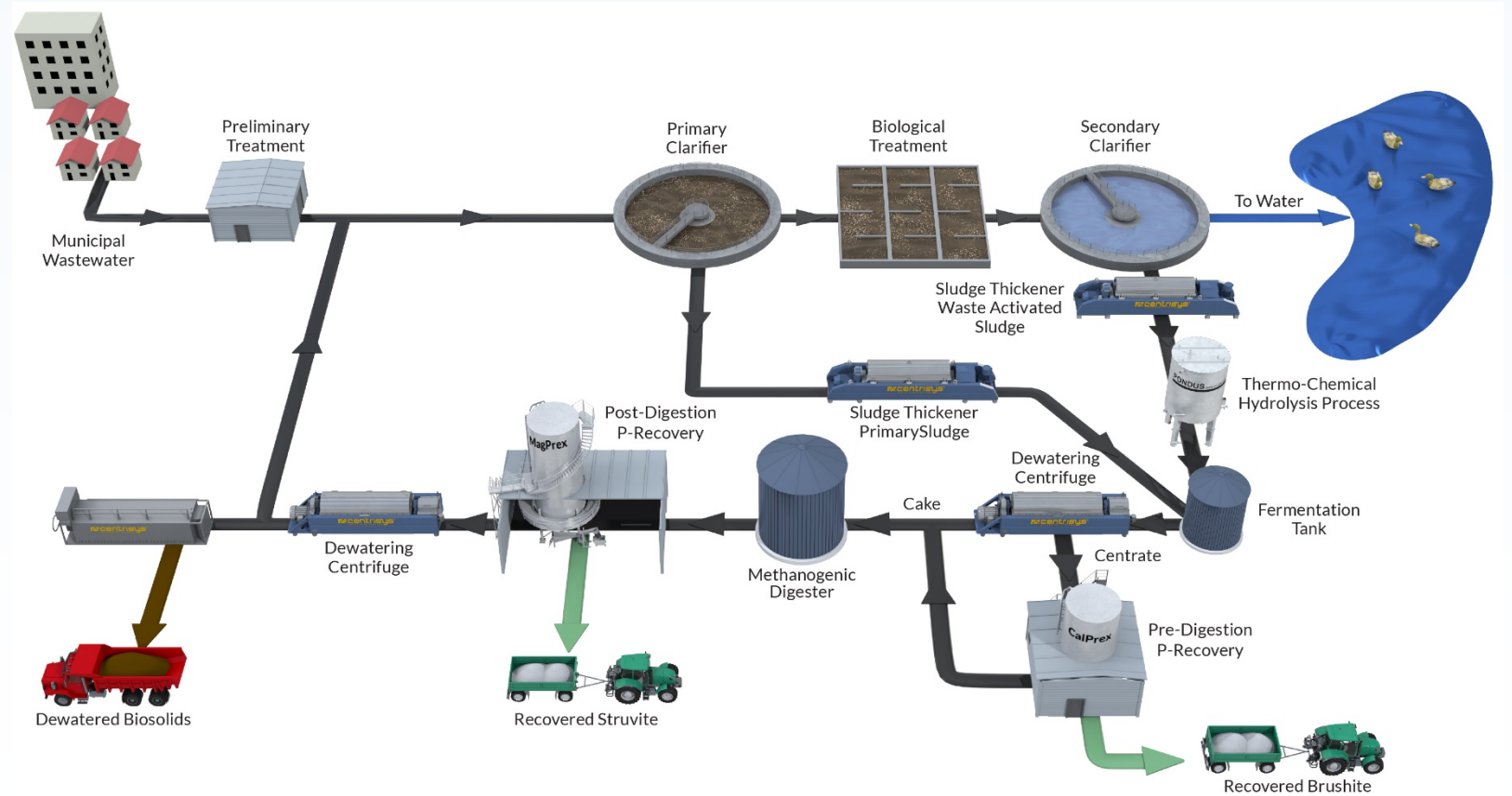
**Water + Wastewater**  
Municipal + Industrial  
CS + THK Series



**Mining + Minerals**  
Schaunenburg (Kuala Lumpur)  
CS30-4 T Model



# Centrisys/ CNP Advantages



Dewatering + Hydrolyzed Sludge

# Kenosha Water Utility

Kenosha, Wisconsin  
(2) THK200 | CS21-4HC | PONDUS (THP)

American Council of Engineering Companies (ACEC) Gran Award Winner for the Kenosha Water Utility Optimization Project for CS Series, THK Series and PONDUS; recognized as a top project for the state of Wisconsin and nationally recognized in Washington D.C.

W&WD Top Project for the Kenosha Water Utility Optimization Project for CS Series, THK Series and PONDUS

Named Utility of the Future Today Recognition Program for the Kenosha Water Utility Optimization Project for CS Series, THK Series and PONDUS



REPRINT: Treatment Plant Operator | August 2017

A PLANT ON LAKE MICHIGAN'S SHORE  
USES A MIX OF INNOVATIVE TECHNOLOGIES  
TO MAKE THE MOST OF NUTRIENTS  
AND ENERGY CARRIED IN WASTEWATER

STORY: Jim Force  
PHOTOGRAPHY: Michael McLoone

DRIVEN BY A PASSION FOR INNOVATION, THE KENOSHA Wastewater Treatment Plant team has converted a messy, inefficient biosolids process into a state-of-the-art resource recovery and energy production system.

The technology includes thickening centrifuges; thermal-chemical hydrolysis; high-solids anaerobic digestion with mechanical hydraulic mixing; biogas conditioning, dewatering and drying; and combined heat and power generation. The system has been humming along for just under two years, generating all the electricity and heat required for biosolids handling, and surplus electricity for about one-third of other treatment plant needs.

Humming is the right word. It's clean and quiet as Curt Czarnecki, director of engineering services, shows off the new units in the old dewatering building. Ear protection isn't required as he explains how the new system has improved sludge consistency and reduced the number of digesters needed, while producing a 90 percent solids Class A end product that has cut biosolids landfilling costs by at least two-thirds, based on volume reduction alone.

"We like to be on the cutting edge of technology," Czarnecki says. "Our general manager, Ed St. Peter, takes a lot of pride in being an industry leader." Kenosha gets good value because equipment manufacturers are eager to demonstrate new technology at the plant and make sure it functions as designed. Since training and technical assistance are important, it helps to have local suppliers. Centrisys Corporation of Kenosha supplied the thickening and dewatering centrifuges.

#### CONVENTIONAL TREATMENT

The 22 mgd (average) Kenosha treatment plant occupies 29 acres on Wis-

“We wanted to increase our biogas production, generate electricity and use waste heat as our primary thermal energy supply.”  
CURT CZARNECKI, P.E.



Dewatering + P-Recovery

# Metro Wastewater Reclamation District

Denver, Colorado  
(8) CS26-4 | MagPrex™

The centrifuges replace aging equipment at the 220 MGD Robert H. Hite Treatment Facility and will support increased performance and capacity as the district moves into a new biological phosphorus removal process with MagPrex. This installation of MagPrex is the world's largest struvite recovery system from digestate and will drastically reduce phosphorus recycle loads, struvite formation and improve dewaterability. All units will be fully operational by the end of 2021.



Click [here](#) to watch as one of the nine-ton centrifuges is lifted into the brand new six-story centrifuge building.





Advanced Biosolids Treatment

# Contact Us



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 [www.youtube.com/c/centrisys-cnp](http://www.youtube.com/c/centrisys-cnp)



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