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TO: City of Green Cove Springs
Green Cove Springs, Florida
Attn : Scott Schultz
Ph : (904) 219-7540
Email : sschultz@greencovesprings.com

Budget Proposal
City of Green Cove Springs, Florida
Trailer Mounted CS21-4HC 2PH Skid



Centrisys Contact

Josh Benoit
Regional Sales Manager
9586 58th place
Kenosha, WI 53144
Ph: (262) 654-6006
Direct: (262) 220-2042
Email: josh.benoit@centrisys.us

Centrisys Representative

Zack Mansker
Environmental Equipment Services
3616 Harden Blvd #337
Lakeland, FL 33803
Direct: (863) 220-3081
Email: zrm@ees-fl.com



Centrisys is pleased to provide this quotation for the following:

ITEM 1. ONE (1) DECANTER CENTRIFUGE SKID MOUNTED UNIT MOUNTED ON TRAILER, MODEL CS21-4HC 2PH COMPLETE WITH AUTOMATIC HYDRAULIC BACKDRIVE

1.A Basis of Design – Sludge Feed Characteristics

Industry Type:	Municipal Wastewater
Number of units:	One (1)
Design Feed Flow rate/Unit:	TBD
Hydraulic throughput/Unit:	225 gpm
Dry Solids loading:	TBD
Feed Concentration:	TBD

1.B Centrifuge specification

Model:	CS21-4 HC 2PH
Inside bowl diameter (in):	22
Bowl length (in):	100
Bowl length to diameter ratio:	4.3:1
Beach angle (deg):	15
Maximum Bowl speed (RPM):	3150
Type of lubrication:	Grease
Main Motor HP:	75
Back Drive Motor HP:	15
G-Force (g):	3000

1.C Equipment description

1. Each unit will be provided based on the attached drawing CS21-4HC 2P Centrifuge Skid GA.pdf
2. Each unit consists of
 - A. Centrifuge Assembly with
 - a) Solid bowl - The bowl, consisting of a horizontal cylindrical-conical assembly, shall have a minimum diameter and be supported by spherical roller bearings mounted on pillow blocks.
 - b) Scroll conveyor - A horizontal cylindrical-conical scroll conveyor supported by grease lubricated cylindrical roller bearings and grease lubricated angular contact anti-thrust ball bearings.
 - c) Casing - 316 stainless steel lower casing and one piece upper casing. The cake discharge area is protected by replaceable wear liners.
 - d) Base/frame - Fabricated carbon steel base with 304 stainless steel wetted parts. The base will be mounted on vibration isolators.

3. **Main Drive Motor** with variable frequency drive to run the rotating assembly
 - A. Installed power: 75HP
 - B. Rotation speed: 3550 rpm
 - C. Electrical requirements: 480V/60Hz/3Ph
 - D. Type of protection: TEFC

4. **Hydraulic Back drive/Scroll drive System**
 - A. Hydraulic Motor
 - a) Type: 2071D
 - b) Max Torque: 12,980 Nm
 - B. Hydraulic Pump
 - a) Installed power: 15 HP
 - b) Rotation speed: 1800 rpm
 - c) Electrical requirements: 480V/60Hz/3Ph
 - d) Type of protection: TEFC

5. **Flexible Connectors**

Solid and liquid flexible connectors will be supplied to isolate the centrifuge from rigid piping.

6. **Thickened/Dewatered Sludge and Centrate Chutes/Hoppers**

7. **Control Panel**
 - A. A complete 304SS NEMA 4X enclosure shall be furnished for each centrifuge to include all controls, instrumentation and interlocks necessary for the operation of the centrifuge and ancillary equipment.

 - B. The control panel shall be equipped with the main circuit breaker, variable frequency inverter for the main drive motor, motor starter for the hydraulic drive system, pushbuttons and running lights for main and backdrive motors, ammeters for main drive motor and malfunction indicators. Ethernet communication for monitoring from SCADA and historical trending of key parameters like bearing temperatures, vibration, hydraulic pressure, flow rates etc., are included. Also includes Allen-Bradley PLC and valve amplifier for the back drive system.

 - C. The control panel shall also be equipped with a 10" Allen-Bradley Panel View touchscreen for operator control and system operation. All set points and operating parameters will be accessible from the touchscreen.

 - D. Standard control panel design uses an air/water heat exchanger to regulate internal panel temperature. Alternately, air conditioner, NEMA4X fan/filter, or vortex cooler is available depending on the customer preference and site conditions.

8. Instrumentation

- A. One (1) Vibration sensor per unit
- B. One (1) main bearing temperature sensor, type PT100 on each bearing
- C. One (1) each Bowl/Scroll speed sensor/unit
- D. One (1) Hydraulic oil level/temp. sensor/unit
- E. One (1) Hydraulic pressure sensor/unit

9. Automatic Grease Lubrication System

- A. One (1) low Grease level sensor per unit

10. Seals

- A. Scroll bearings: Mechanical seals
- B. Main bearings & Housing: Labyrinth Seals

11. Sludge Feed Pump

One (1) progressive cavity pump/unit with capacity range of 0-225 gpm.

- A. Body: Case iron ASTM A48 class 35
- B. Base: Cast or fabricated steel
- C. Seal: Mechanical
- D. Motor: TEFC 460V, 60 Hz, 3Ø, 10 hp or manufacturers standard as required to deliver the flow rates specified.
- E. Control: Feed pump control from PLC & VFD integrated into centrifuge control panel

12. Flow Meter

One (1) Magnetic flow meter/unit.

13. Polymer Feed System

One (1) liquid polymer feed system/unit

(i) Control of polymer system shall be through the Centrifuge PLC Control System.

14. Cake transportation system

(i) Primary conveyor

The primary conveyor is stationary to the skid and is equipped with a drain to reroute the water during start up and shut down.

(ii) Secondary conveyor

A secondary 12ft. swing cake conveyor is adjustable in height and in range.

15. Skid Mounted system

Complete skid mounted unit to include all the above items with piping and wiring, catwalk and handrails.

16. 15 Ton Trailer

One (1) Flatbed trailer, 8'6" wide 30' long

Dual wheel tandem axle suspension assembly

Equipped with manual leveling jacks

ADDER: (4) hydraulic stabilizing jacks with the 12 Volt pump system installed on trailer

17. Skid Hold Down Assemblies

Hold down assemblies to keep skid secure to trailer

ITEM 2 MATERIAL OF CONSTRUCTION

Bowl:	Duplex stainless steel
Scroll Hub/conveyor:	Duplex stainless steel
Flight face	Half Tiled - TC tiles from the feed chamber to solids discharge.
Flights	316 SS
Casing	316 SS
Base/Frame:	Powder coated carbon steel
Fasteners:	304 SS
Skid	Powder coated carbon steel

ITEM 3 SERVICES

3.A Drawings and Installation, Operation and Maintenance (IO&M) Manuals:

1. Submittal Drawings: One (1) electronic copy included; prints by request
2. Final Drawings: Two (2) prints & One (1) electronic copy included
3. O&M Manuals: Two (2) prints & One (1) electronic copy included

3.B Start-Up Assistance:

Centrisys will furnish one factory representative for 5 days or 40 hours (whichever occurs first) during 1 trip to assist in installation inspection, start-up supervision, and operator training. Dates of service to be scheduled upon Buyer's written request.

PURCHASE PRICE:

All of the above for **\$784,500** USD

Lease-to-Purchase Option: 25% down payment of **\$198,400** USD with financing of remainder over 24 months with 5% annual interest amortized into monthly payments. Monthly payments shall amount to **\$26,120/month**. Centrisys will maintain ownership of the unit until the unit is fully paid. Includes the Hydraulic Stabilizing Jacks Adder.

F.O.B. Job Site, freight included, taxes excluded.

ADDER: NOT INCLUDED IN PURCHASE PRICE OR SCOPE

Four (4) Hydraulic stabilizing jacks with 12v pump system**\$9,100** USD

PAYMENT TERMS:

30% with order; 60% upon shipment; 10% after startup not to exceed 90 days after shipment.

Lead Time: 28-32 weeks following receipt of the Approval drawings

ITEM 4 WARRANTY

One (1) year from the equipment start up or eighteen (18) months from delivery.

BUYER/OWNER RESPONSIBILITY:

- Polymer totes
- Building and building plans (Centrisys provides only the layout drawings without any responsibility of updating any plans or building)
- Building modifications
- Structural and Civil engineering labor
- All utilities that are required for operation
- Unloading, uncrating, installation and installation supervision. Installation will, at minimum, require a forklift and possibly a crane/hoist.
- Readiness of the Equipment before requesting start-up service. Non-readiness may incur additional charges.
- Compatibility of Equipment materials of construction with process environment.
- Piping connections, platforms, gratings and railings unless stated otherwise.
- Any other auxiliary equipment or service not detailed above.

Issued by

Ethan Banks
Applications Engineer

Date: 5/6/2022