

PRODUCT FOCUS

Centrifuge Dewatering System Designed to be "Plug and Play"

The USFilter Centrapac™ centrifuge dewatering system offers a "plug and play" solution to sludge dewatering. The prefabricated and skid-mounted package includes the company's Centramax™ centrifuge, scroll drive unit, feed pump, flowmeter, discharge screw conveyor, polymer system and PLC control system.

The heart of the system is the Centramax solid bowl, high solids centrifuge, which uses centrifugal force to achieve liquid-solid separation. Slurry is introduced through a stationary feed pipe where it is accelerated before being fed into the cylindrical section of the bowl. There, the solids are settled and compacted as a result of the centrifugal force being generated by the rotation of the bowl acting on the differences in specific gravity between the solids and liquids. The heavier solids are forced to the bowl wall while the lighter liquid forms a clarified layer above the solids. The liquid flows toward the larger end of the centrifuge bowl and is discharged as clean effluent through adjustable weirs.

An independent hydraulic drive system creates a differential speed between the bowl and scroll conveyor. The settled and compacted solids are conveyed in the opposite direction of the effluent discharge. The conveyor

moves the solids toward the conical section of the bowl, where further dewatering of the settled solids takes place. Solids are conveyed out of the liquid pool onto the inclined beach area of the cone where residual liquid is drained away prior to the discharge of the solids at the small diameter end of the bowl. Control of the scroll conveyor drive allows the centrifuge to automatically operate at minimum differential speed to obtain the longest retention time for the solids prior to discharge, producing the optimum performance on cake solids.

The Centrapac package is piped and wired for minimal installation requirements and cost. All that is required is presetting the optimal bowl and scroll differential speed and dialing in the desired feed rate. The centrifuge automatically adjusts to provide maximum solids recovery and minimum polymer consumption. The system is flexible to accommodate change in process volumes, varying particle sizes and sludge types.

Case Study

Due to the growing population in Walton County, FL, the flow rates to Regional Utilities' three wastewater treatment plants have permanently increased by 15% each year in recent years. With these greatly increased

wastewater flows, the utility has struggled to keep up with drying and disposing of its digested sludge. After considering all of its options, Regional Utilities turned to USFilter for an easily implemented solution.

Regional Utilities has been operating a Centrapac centrifuge dewatering system for approximately one year. The utility had been using drying beds and decided to install a centrifuge technology instead because of the large footprint required by drying beds.

"The main consideration," said Dave Marell, director of water and wastewater, "was simply the amount of land you had to take up for more drying beds. At Sandestin [facility] we would have had to build 15 to 20 more beds to keep up. Down here an acre of land can cost \$6 million.

"One centrifuge and its building takes up less space than half of one drying bed," Marell said.

The new centrifuge operates three



to four days a week for eight to 10 hours at a time.

"We feed the sludge between 65 and 75 gal/min. We're able to achieve 18% dry solids," said Marell. "It couldn't be easier. It's all automated. The operators turn it off manually and then the unit goes into automatic backwash and shuts down itself."

For more information, visit the company's website at www.usfilterdsg.com. **WW**

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