



WHIRLER

DECANTER CENTRIFUGE SLUDGE
DEWATERING APPLICATION

WHIRLER CENTRIFUGALS PVT LTD
AHMEDABAD

Decanter Centrifuge STP & WTP Application

- Whirler Centrifuge Overview
 - STP & WTP Challenges
 - Dewatering Methods
 - Centrifuge Operational Details
 - Whirler Expertise
 - Performance Requirements
 - Whirler Advantages
 - Project Considerations
 - Summary & Benefits
 - Q&A
-

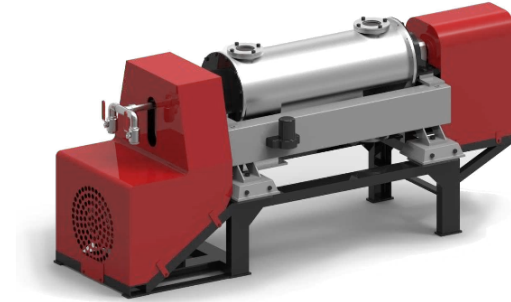


WHIRLER



STP & WTP Plant Sludge

- STP & WTP sludge is the semi-solid residual material left after treating wastewater in a Sewage Treatment Plant. It primarily contains organic matter, microorganisms, and settled solids & can be used further as fertilizer.
 - The large volume of STP & WTP sludge is generated due to the accumulation of removed solids and biomass produced during the wastewater treatment processes.
 - Large sludge volume leads to high costs for transportation, treatment, and disposal, demanding significant land area and posing potential environmental risks if not managed properly.
-



Dewatering Sludge

- Dewatering significantly reduces the volume and weight of sludge, lowering transportation and disposal costs.
 - It improves the handling characteristics of sludge, making it easier to manage and process for further treatment or reuse.
 - Dewatering enhances the efficiency of subsequent treatment processes like incineration or composting by increasing the solids concentration.
-



Dewatering Methods

- Belt Presses offer continuous operation but can have lower cake solids and are sensitive to greasy sludges.
 - Filter Presses achieve high cake solids but are batch processes with high initial and operational costs.
 - Drying Beds are low-cost and simple but heavily weather-dependent, require large land areas, and have long drying times.
 - **Centrifuges** offer a more compact and often continuous dewatering solution, achieving good cake solids and handling various sludge types with optimized polymer use.
-



Whirler Decanter

- Whirler decanter centrifuges are advanced separation devices utilizing high centrifugal forces to efficiently separate sludge solids from the liquid phase in STP & WTP applications.
 - Their dewatering design provides ease of use, improves solids discharge, optimizes dewatering performance and cake dryness.
 - These centrifuges offer continuous operation, a relatively compact footprint, and the ability to handle varying sludge characteristics, making them a robust solution for modern STP & WTP sludge management.
-



About Whirler

- Whirler is 45+ years of experience company, run by second and third generation engineers, manufacturing all kind of Centrifuges, Screw Press, for solid liquid separation application.
- Whirler is the first INDIAN company to manufacture Decanter Centrifuge Indigenously, installed in 1992, is still is in operation.
- Whirler has installed 1000+ different type centrifuges in various applications in all corner of India, and abroad.



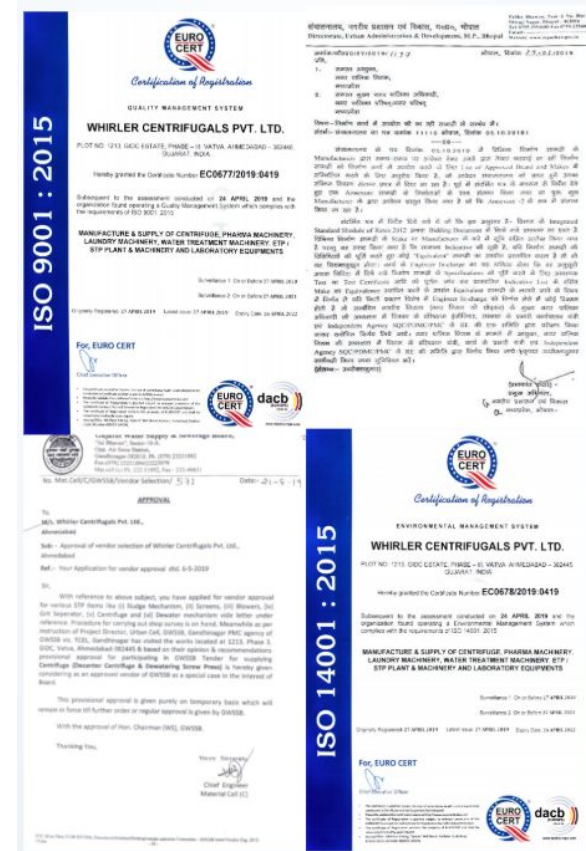
Whirler STP & WTP Product Range

- Whirler makes Decanter centrifuge for STP & WTP Sludge Dewatering Application.
 - Whirler makes Screw Press for Oily STP & WTP Sludge in food Industry.
 - Whirler makes Basket Centrifuge for KLD scale small STP & WTP Plants.
 - Whirler makes Dual Screw Press for biogas slurry dewatering application.
 - Whirler makes Decanter for lime-sludge dewatering application.
 - Whirler have solution for all kind of ETP/STP & WTP Sludge Dewatering and Drying application.
-



Quality

- Whirler is an ISO 9001:2015 and ISO 14001:2015 Certified Company.
- All Decanters manufactured are thoroughly tested and certified, with TPI like SGS, TUV Nord, DNV, Lloyd's, EIL, PDIL, BVI, TUV SUD, Tata Projects etc.
- Team of 4+ Dedicated engineers, 20+ technicians and 40+ workers ensure timely qualified execution.
- Yearly execution of 100+ projects.



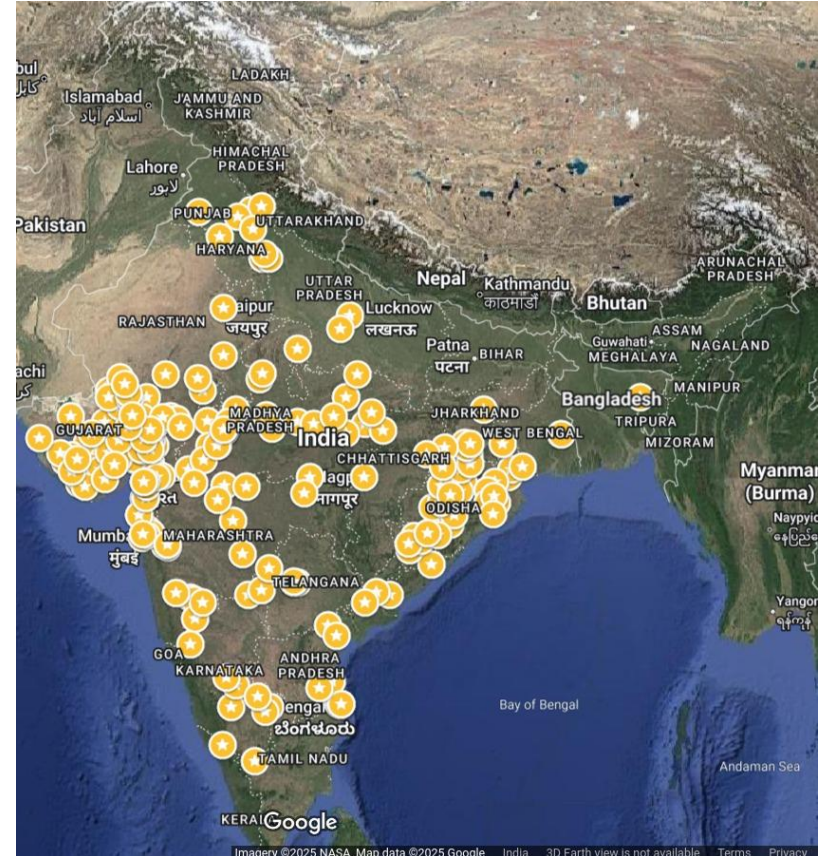
Manufacturing

- Whirler has a manufacturing plant of ~72000 Square feet, near engineering city of India, Ahmedabad.
- Inhouse facility of Machining with modern equipment like CNC and VMC, CNC Grinding Machine, CNC Plasma Cutting Machine, Licensed CAD/CAM Softwares, 3 State of the art Balancing Machines, with strength of 100+ peronnels.
- Comprehensive manufacturing capacity of 200+ machines a year.



Experience

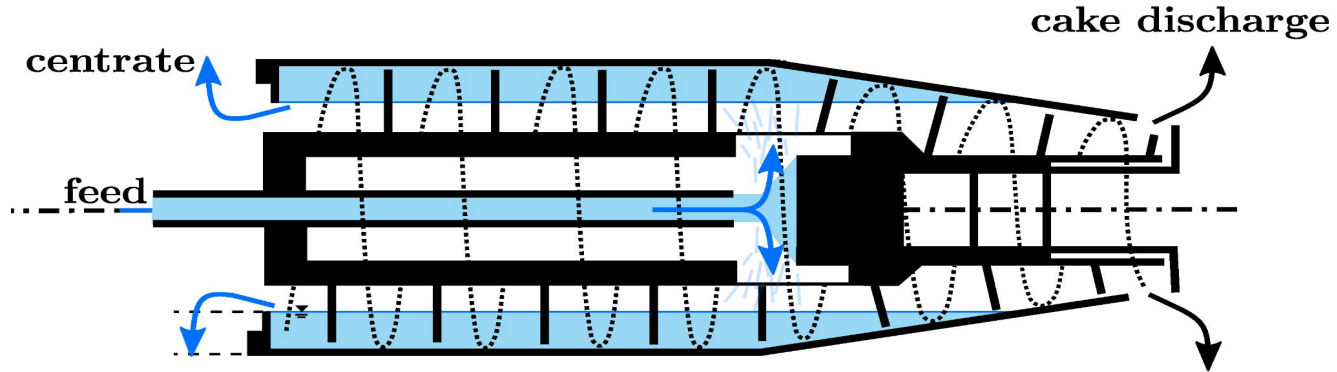
- Whirler has supplied Decanter Centrifuge in Municipal STP & WTP Plants, Regional STP & WTP Plants, CETP Plants, ETP Plants etc.
- In Industry like paper, dye, chemical, food, starch, pharmaceutical, plastic, recycling, lchette processing etc.
- We have worked with central, state, municipal body, CETP contractors and International Water treatment Plant manufacturers.





How Decanter Works ?

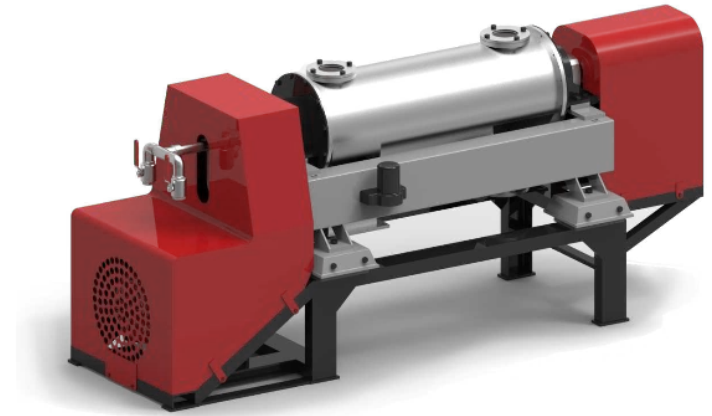
1. **Feed Introduction:** The mixture (slurry) containing solids and liquids is continuously pumped into the center of a rapidly rotating horizontal bowl, usually through a stationary feed pipe.
2. **High-Speed Rotation & Separation:** The bowl spins at high speeds, generating powerful centrifugal forces (thousands of times greater than gravity). This force throws the denser solid particles outwards against the bowl's inner wall.
3. **Solids Conveying:** An internal screw conveyor (scroll), rotating at a slightly different speed than the bowl, continuously scrapes the accumulated solids along the bowl wall towards one end (the conical section).
4. **Separate Discharge:** The compacted solids ("cake") are discharged from ports at the conical end, while the clarified liquid ("centrate" or supernatant) flows towards the larger cylindrical end of the bowl and exits through adjustable overflow weirs or ports.



Decanter Selection



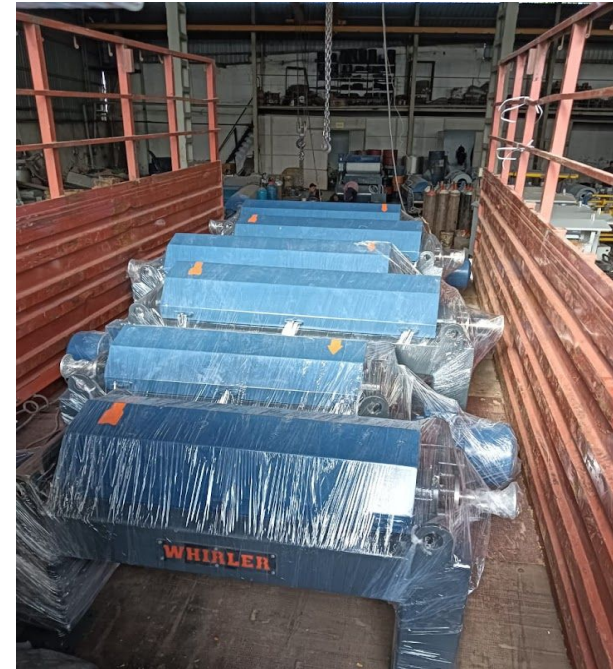
1. **Performance Requirements (Cake Dryness & Capture Rate):** Define the target cake dryness (percentage of dry solids, %DS) and the necessary solids capture rate (typically >95%) to ensure a clear centrate (low suspended solids) returning to the plant.
 2. **Sludge Characteristics & Wear Resistance:** Assess the specific type of sludge (e.g., primary, secondary/WAS, digested, mixed, Sewage), its abrasiveness, and variability in solids concentration. Select appropriate stainless steel grades and robust wear protection to ensure longevity and minimize downtime.
 3. **Capacity & Polymer Consumption:** Ensure the centrifuge has adequate hydraulic and solids handling capacity (m^3/hr and kg DS/hr) to process the plant's peak sludge flow.
 4. **Operational Costs & Reliability:** Consider ease of operation (automation level, control system flexibility for differential speed and pond depth), required maintenance proven reliability and service support for the centrifuge model in demanding STP & WTP environments.
-



Decanter Benefits



1. **High Cake Dryness & Volume Reduction:** Decanter centrifuges effectively separate water from sludge, this significantly reduces the final sludge volume, leading to cost savings in transportation and disposal.
2. **Automated and Continuous Operation:** These systems are designed for continuous operation and typically feature high levels of automation. This reduces labor costs, and ensures consistent performance.
3. **Enclosed System for Odor & Aerosol Control:** As decanters operate within a sealed casing, they effectively contain unpleasant odors and potentially hazardous aerosols associated with sewage sludge. This improves the working environment within the STP & WTP and minimizes environmental nuisance compared to open dewatering systems.
4. **Compact Footprint & Flexibility:** Compared to some other dewatering technologies of similar capacity (like belt filter presses), decanter centrifuges often require less floor space, making them suitable for plants with space constraints. They can also handle variations in feed sludge characteristics (concentration, type) relatively well when properly controlled.



Whirler Benefits

1. **Design Features:** Standard Design with locally and indigenously developed components provides ease of maintenance, with 15+ years of spares support.
2. **Advanced Wear Protection Technology:** Whirler Centrifugals 's high performance Stellite alloys based wear protection on critical parts (scroll edges, feed/discharge zones), leading to longer operational life, on site and lower maintenance costs.
3. **SCADA Control Systems & Automation:** All panel comes with SCADA systems communication option and support.
4. **Localized Support & Service Structure :** A key unique benefit Whirler Centrifugals might emphasize is strong, responsive local manufacturing, service, spare parts availability, and technical support based within India, potentially offering faster turnaround times and tailored solutions for the Indian market compared to international competitors.



Practical Considerations

1. **Reproducible Results** : Due to installations around whole India, we have faced and solved wide variety of site specific issues, not only that helps in optimizing solution, but also helps in timely project executions..
 2. **Site Integration, Utilities & Ancillaries:** Robust Vibration isolators, line choke and MCCBs for unstable power supply, Designed for onsite and easy maintenance, simple greasing system. Ensuring these support systems are reliable and properly maintained during operation.
 3. **Vendor Support, Maintenance & Spares Strategy:** Any time call / video call based support, technical person availability and 15+ years of spare availability.
 4. **Operator Skill, Safety & Feed Management:** Operator training for optimization of operation for cost benefit while optimizing product output.
-



Service & Maintenance

1. **Responsive Local Field Service:** Backed by readily available and qualified field service engineers, ensure timely on-site assistance for troubleshooting and repairs.
 2. **Comprehensive Technical Expertise & Training:** Providing highly skilled technicians for effective diagnostics, maintenance, and operational optimization.
 3. **Robust Spare Parts Availability:** Maintaining a significant inventory of genuine spare parts, minimize delivery times and equipment downtime during maintenance or breakdown scenarios.
 4. **Proactive Maintenance Programs & Support:** Offering structured preventative maintenance plans and service contracts tailored to customer needs and operating conditions. supplemented by technical phone support or remote diagnostic capabilities.
-



Q & A

Questions ?

- Clarification ?
- Elaboration ?
- Comparisons ?
- Opinions ?
- Critique ?
- Technical ?
- Commercial ?



Let's Work Together

- Email : info@whirlercentrifugals.com
- Phone : +91 94264 19038
- Office : L605, GIDC, Odhav, Ahmedabad
382415, Gujarat, India
- Works : 13,14 Industrial Estate, Varsola,
Mahemdabad, Kheda 387130, Gujarat, India.



Thanks

- Thank you for your time, consideration, and opportunity to present WHIRLER's decanter centrifuge technology.
- We look forward to mutually rewarding opportunities.
- Thank You.

