

HECS[®]

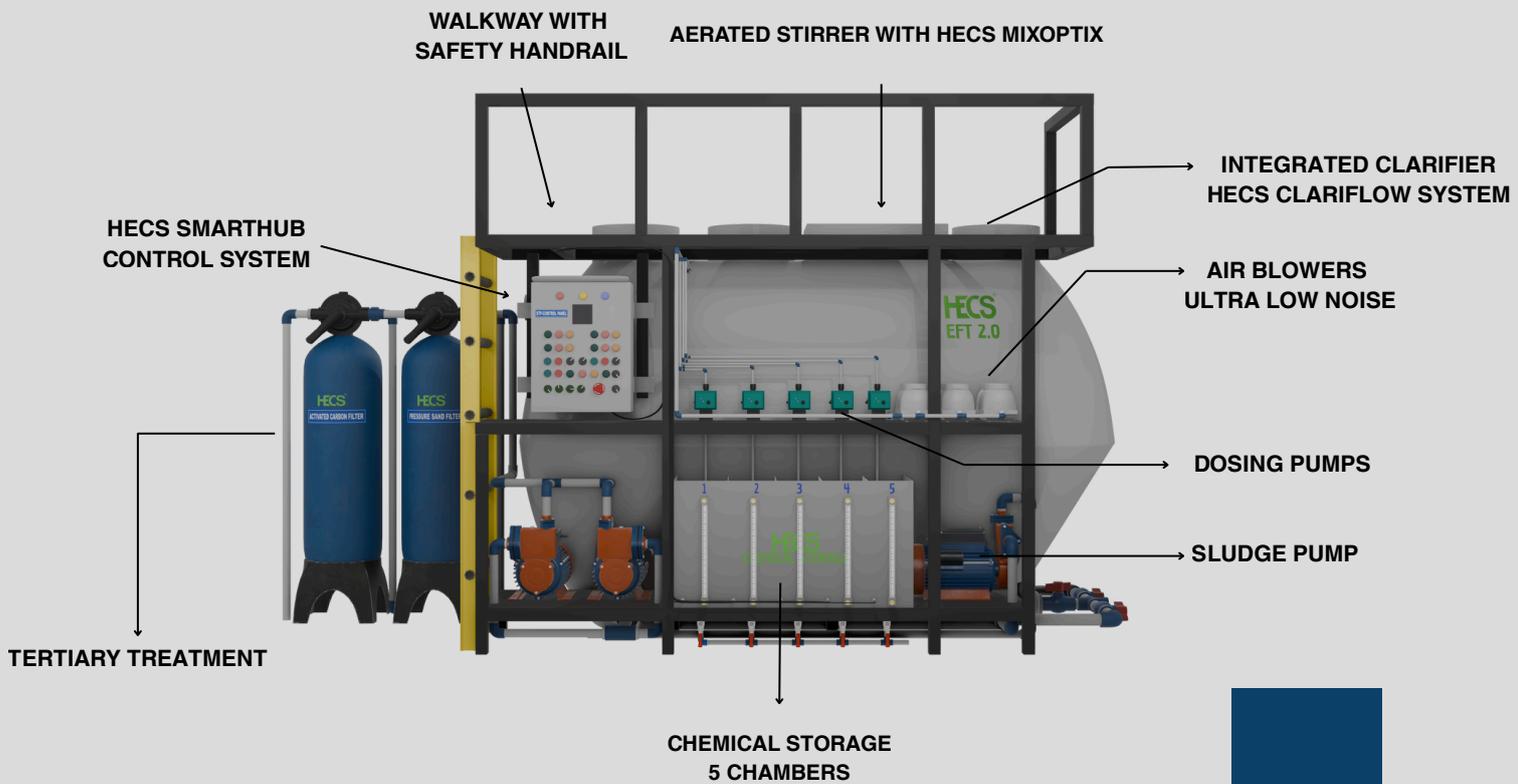
X-FLUENT

WASTEWATER. SIMPLIFIED.

COMPACT EFFLUENT TREATMENT PLANT

HECS X-Fluent is a future-ready multi-effluent treatment solution designed for simplicity, performance, and ease of operation. Built with advanced HECS engineering, it makes wastewater management smarter and simpler.



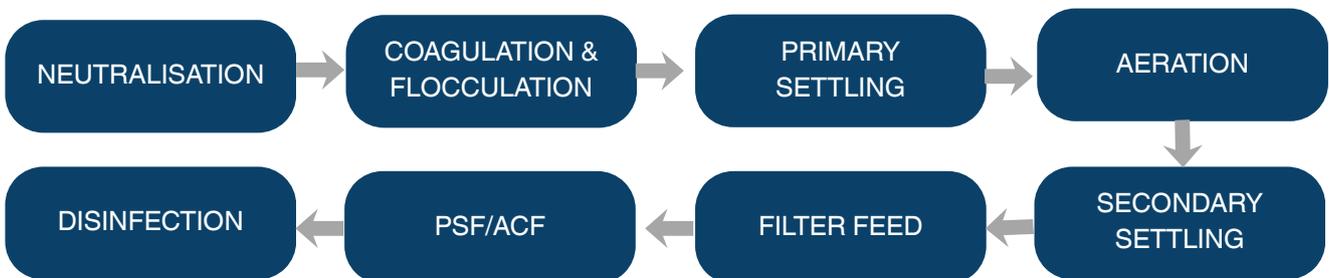


Smart | Compact | Complete

The HECS X-FLUENT represents a paradigm shift in compact industrial effluent treatment. Developed with HECS's proprietary integrated-flow architecture (Industrial design pending, Patent Pending), this fully moulded FRP system combines precision fluid dynamics, smart process automation, and acoustic-optimised engineering into a single, factory-assembled module.

Built to perform in demanding environments, X-FLUENT reduces the need for comprehensive civil construction or separate equipment rooms — delivering plug-and-treat capability with low noise operation and real-time process intelligence.

PROCESS FLOW



MOC: FRP | Model: EFT 5 - Upto 5KLD | EFT 10 - Upto 10 KLD | Operational Hrs: Upto 20

PROCESS ARCHITECTURE

TWO-STAGE AERATED MIXING TECHNOLOGY

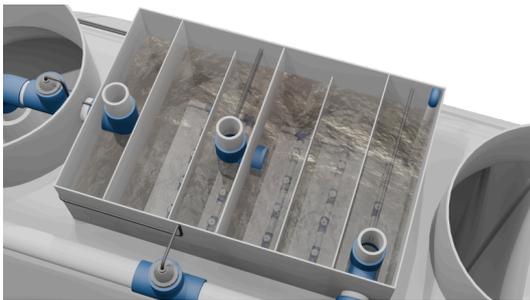
The HECS MixOptix System is a two-stage aerated mixing technology developed to achieve precise chemical blending and uniform reaction kinetics in compact effluent treatment plants. Designed with a baffled upward-flow geometry and integrated air-agitation grid, MixOptix ensures complete homogenisation of pH-correction, coagulation, and flocculation zones with minimal energy input.

Stage 1 – pH Neutralisation Reactor (AS-1)

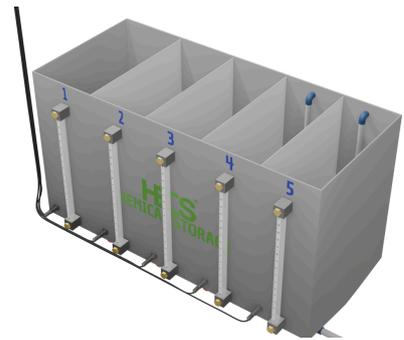
Effluent enters the Aerated Stirrer Reactor I (AS-1) which maintains auto-regulated pH via inline pH probe and dosing logic. Aeration diffusers ensure homogeneous acid-base contact with turbulence.

Stage 2 – Coag-Floc Reactor (AS-2)

The neutralised stream advances to Aerated Stirrer Reactor II (AS-2) — designed for precision polymer blending. Precise aeration enhances particle collision and floc formation.



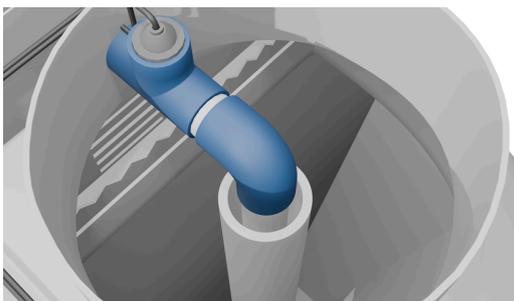
TWO STAGE HECS MIXOPTIX SYSTEM



CHEMICAL STORAGE CHAMBERS

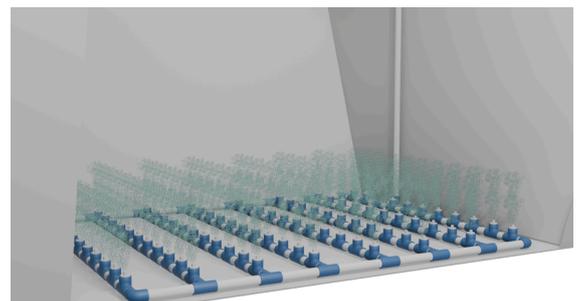
Stage 3 – Integrated Clarifier

The HECS Clariflow System is a compact, hydraulically balanced clarification module designed to achieve effective solids-liquid separation within the X-FLUENT unit. It combines a feed-well stabilisation zone, peripheral overflow collection, and a conical sludge discharge chamber, ensuring steady hydraulic loading and clear supernatant quality even under variable influent conditions.



Stage 4 – Bio-Aeration

The Aeration System is an engineered low-noise air delivery network designed for continuous, efficient aeration within the X-FLUENT unit. Developed to maintain uniform airflow and turbulence-controlled oxygen dispersion, the system integrates a diffuser grid with low noise blower achieving high oxygen transfer efficiency with low noise and power consumption during operation.

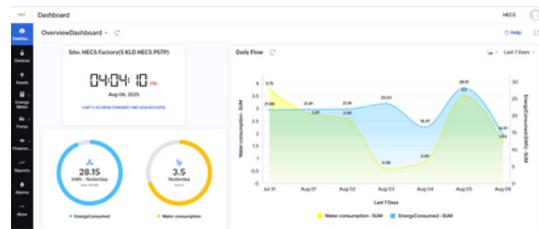
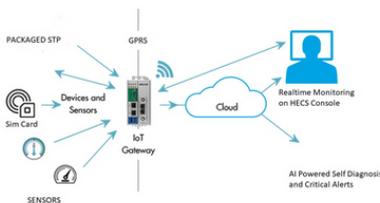


Stage 5 – Final Settling & Filtration Manifold

Treated water enters a filter-feed module. Integrated auto-priming manifold for direct connection to filter pumps. Pressure Sand Filter (PSF) and Activated Carbon Filter (ACF) modules for compact polishing. Chlorination disinfection with optional UV is finally provided.

SYSTEM INTELLIGENCE & AUTOMATION

- IoT-Enabled SmartHub Control Panel – real-time pH flow monitoring and equipment wise remote operational monitoring
- Optional Predictive Dosing Algorithm – adaptive chemical feed control based on effluent variability.
- Automated daily reports
- Auto-Start / Auto-Stop Routines – power-optimised operation aligned with flow rate and sensor feedback.



ENGINEERING HIGHLIGHTS



TWO-STAGE MIXING

MixOptix System for pH neutralisation and coag-floc mixing using baffled flow with controlled aeration



INBUILT CLARIFIER

Clariflow Module with feed-well, overflow weir, and sludge cone for efficient solids separation.



LOW-NOISE AERATION

AirPulse System with fine-pore diffusers and insulated blower for quiet, uniform aeration.



CHEMICAL STORAGE TANKS

Inbuilt five-tank FRP chemical cluster for acid, base, coagulant, flocculant, and disinfectant with level sensors and SmartHub alerts.



SMART SYSTEM

SmartHub IoT panel for live monitoring of pH, flow, and levels with automation logic.



COMPACT FRP DESIGN

One-piece FRP body with integrated walkway, weather protection, and outdoor-ready finish.



ENERGY EFFICIENT

Variable-speed drives and low-power blowers reduce operational cost



PLUG-AND-TREAT

Factory-assembled unit requiring no civil tanks or separate blower room

APPLICATIONS

Medical | Laundry | Pharmaceutical | Chemical | Electroplating | Textile | Automotive | Institutional | R&D Laboratories

CONTACT US Email: pstp@hecs.in Mob: 98844 01216 / 9150041791