SmartFlow Technologies

HSTFF™ FOR CORN ETHANOL STILLAGE

SMARTFLOW'S HIGH-SOLIDS TANGENTIAL FLOW FILTRATION (HSTFF™) SYSTEMS:

- ***REDUCE HIGH VISCOSITY EVAPORATOR CHALLENGES***
- ***UNLOCK ADDITIONAL EVAPORATOR & DRYER THROUGHPUT***
- ***DEBOTTLENECK PRODUCTION & INCREASE PLANT CAPACITY***

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INCREASE DRYER THROUGHPUT WITHOUT NEW DRYERS

SmartFlow HSTFF™ systems remove suspended solids and entrained oil from mid-stillage before final evaporation and drying. The result is increased throughput through existing evaporators and dryers without new dryer capex.

Key Benefits:

- **Higher Achievable Syrup Solids:** Cleaner evaporator feed allows concentration to higher solids before viscosity and flow limitations occur.
- **Reduced Dryer Water Load:** Less water entering the dryer reduces fuel demand while increasing effective dryer capacity.
- **Improved Evaporator Performance:** Reduced suspended solids lower fouling tendencies and improve thermal efficiency.
- **Increased Plant Throughput:** Debottlenecking the dryer and evaporation system allows more product to move through existing infrastructure.

TECH SPECS

- **Operating Temperature:** up to 85 °C (peak 90 °C)
- **pH Range:** 1 – 14
- **Typical TMP:** 10 – 140 psi
- **Typical Shear Rate:** 5 000 – 20 000 s^{-1}
- **Membrane Type:** Application-specific

STILLAGE CLARIFICATION (EVAPORATOR FEED)

SmartFlow HSTFF™ systems clarify mid-stillage upstream of final evaporation by removing suspended solids and entrained oil from the evaporator feed loop. The resulting cleaner feed stream improves downstream operability, supports higher achievable syrup solids, and enhances oil recovery performance.

Key Benefits:

- **Targeted Solids & Oil Removal:** Captures suspended solids and entrained oil from the evaporator feed loop while improving downstream process performance and oil recovery efficiency.
- **Improved Evaporator Operability:** Reduced suspended solids lower fouling tendencies and improve downstream process stability.
- **Higher Achievable Syrup Solids:** Cleaner feed streams allow concentration to higher solids before viscosity and flow limitations become restrictive.
- **Reduced Thermal Load:** Higher syrup solids reduce downstream evaporation and dryer energy demand