

EcoSieve Municipal Primary Treatment



PROVIDING SOLUTIONS FOR A BETTER FUTURE

The Mitcherson EcoSieve™

The EcoSieve™ is a high efficiency, high flow liquid solid separator that provides large scale primary treatment in an economical compact modular package. The EcoSieve™ is a mechanical device that screens suspended solids from incoming liquids. Captured solids are collected and dewatered and exiting liquids are filtered. The EcoSieve™ solid separation efficiency is typically between 40-70% removal of Total Suspended Solids (TSS) for medium strength waste water making the EcoSieve a viable replacement technology for conventional gravity settling filters. Biological Oxygen Demand (BOD) removal is typically between 20-40%. Figure 1 shows the comparison of two primary clarifiers with a foot print of approximately 14,800 ft² where the (4) ES-3600 machines occupy only 1,368 ft². The EcoSieve technology in this example requires less than 10% of the real estate from conventional technologies. In addition an EcoSieve installation will typically cost only a fraction of the cost of conventional technologies, usually less than half. These huge cost and space savings make the EcoSieve™ the perfect solution for municipal plants that need to increase capacity of existing systems or looking to replace existing equipment that is near the end of its life cycle.

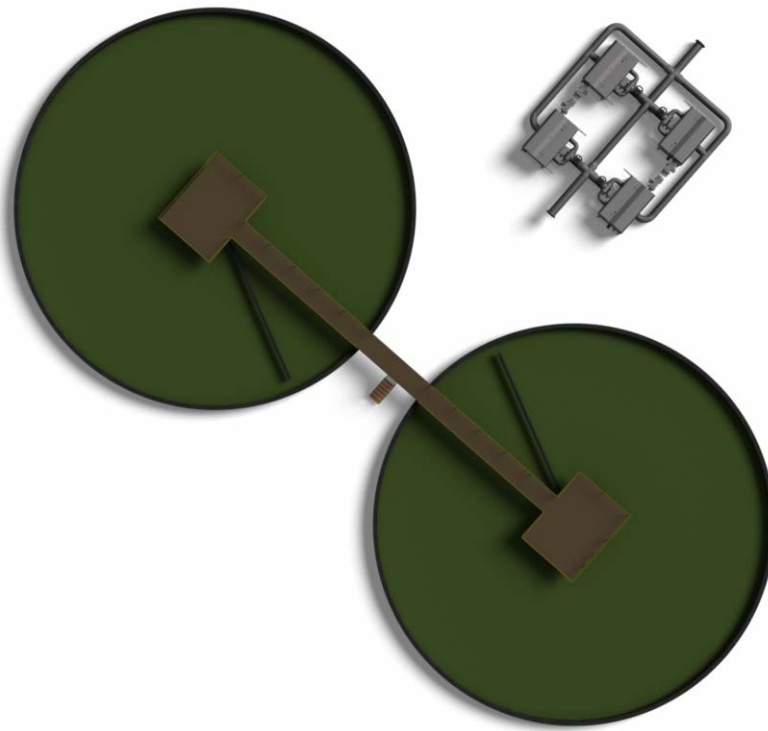


Figure 1. Mitcherson EcoSieve™ versus conventional primary clarifiers – less than 10% of the space required.

EcoSieve™ Design Detail

Mitcherson believes that the key to success is to provide the best possible equipment at the lowest possible cost. Our close attention to engineering and performance has resulted in the design of equipment that out-performs others, is reliable, and operator friendly.



Mitcherson EcoSieve™ Operation

The Mitcherson EcoSieve™ utilizes a proprietary and patent pending continuous sieve to separate solids from influent. The EcoSieve passes influent through a revolutionary rotating polyester sieve with openings between 100 to 800 microns.

The continuous belt screen receives influent in an enclosed tank, which is then filtered and directed to downstream process equipment. The sieved solid residue is then conveyed above the tank liquid level, to the belt cleaning section, and removed by dewatering where solids are expelled as a cake. The dewatered solids or cake can discharge to a container or to a conveying system for either quick disposal or conversion to energy.

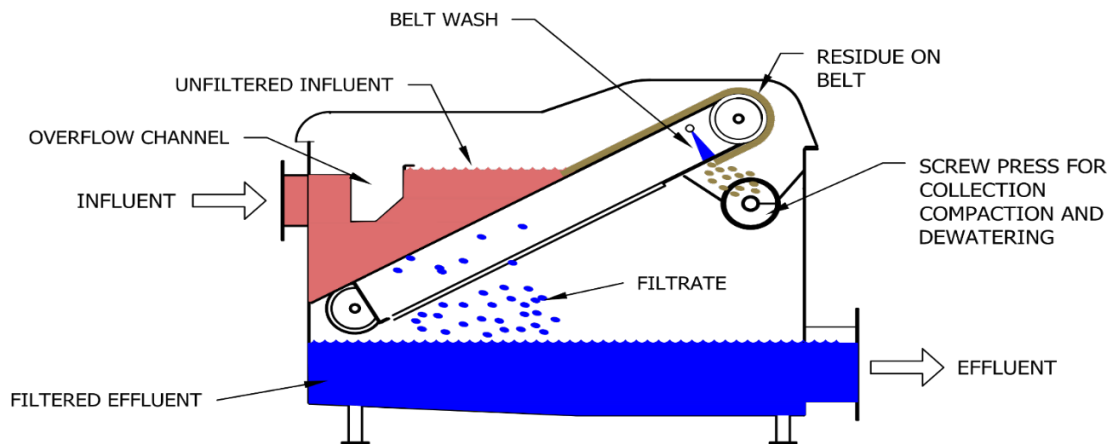


Figure 2. Mitcherson EcoSieve Flow Schematic

Table 1 - MITCHERSON ECOSIEVE™ DESIGN DATA -						
Performance		ES-270	ES-940	ES-1800	ES-3400	ES-3600
Maximum Hydraulic Capacity ¹ GPM (LPM)		300 (1,136)	1,045 (3,955)	2,185 (8,271)	3,765 (14,252)	4,371 (16,546)
Treated Flow ³ MGD (m ³ /hr.)		0.21 (33)	0.75 (118)	1.57 (248)	2.71 (427)	3.15 (497)
%TSS Removal Efficiency (typical)		40-70 %	40-70 %	40-70 %	40-70 %	40-70 %
%Solids from Dewatering (typical)		30-40 %	30-40 %	30-40 %	30-40 %	30-40 %
Model	Weight	Dimension		Inlet / Outlet Connections	KWh Rating	Estimated Power Usage ²
ES-270	1,300 lbs. (589 kg)	71" W x 71" D X 50" H 1.8m W x 1.8m D X 1.3m H		3" / 6"	2.09 kWh (2.80 HP)	35 kWh/day
ES-940	1,840 lbs. (835 kg)	88" W x 81" D X 59" H 2.2m W x 2.1m D X 1.5m H		6" / 10"	2.15 kWh (2.88 HP)	36 kWh/day
ES-1800	4,050 lbs. (1,837 kg)	122" W x 86" D X 62" H 3.1m W x 2.2m D X 1.6m H		8" / 12"	3.58 kWh (4.80 HP)	60 kWh/day
ES-3400	3,650 lbs. (1,656 kg)	144" W x 102" D X 72" H 3.7m W x 2.4m D X 1.8m H		12" / 16"	4.51 kWh (6.05 HP)	75 kWh/day
ES-3600	6,635 lbs. (3,010 kg)	208" W x 119" D X 62" H 5.3m W x 3.0m D X 1.6m H		2x8" / 20"	5.63 kWh (7.55 HP)	94 kWh/day

¹Actual throughput capacities will depend on belt screen porosity and incoming solids loading (i.e., TSS)

²Estimated power consumption based on 24-hr continuous operation & 70% duty cycle (average)

³Estimated treated flow is based on medium strength waste water in municipal applications using 300 micron sieve



Figure 3. ES-1800 Stand-alone unit



Figure 4. ES-3600 Stand-alone unit



Figure 5. ES-270 Skid Mounted Mobile unit

The Mitcherson EcoSieve Models ES-270, ES-940, ES-1800 and ES-3400 are single belt machines. The ES-3600 is a duplex arrangement with 2 belt assemblies installed in one housing with one solids collection system. The EcoSieve can be provided as a stand-alone unit or mounted on a pre-wired skid platform which can drastically reduce field installation cost. Our skid units can be mobile units ready for deployment.

Permanent installations can be set-up with automated solid collection systems taking significant labor out of managing solids produced in large scale operations. All EcoSieve units are provided with a basic control system. Mitcherson can customize the control system for remote control, real-time monitoring, upgraded human interface and additional controls for auxiliary systems. Many options are available to make an EcoSieve installation the perfect fit for your application.

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