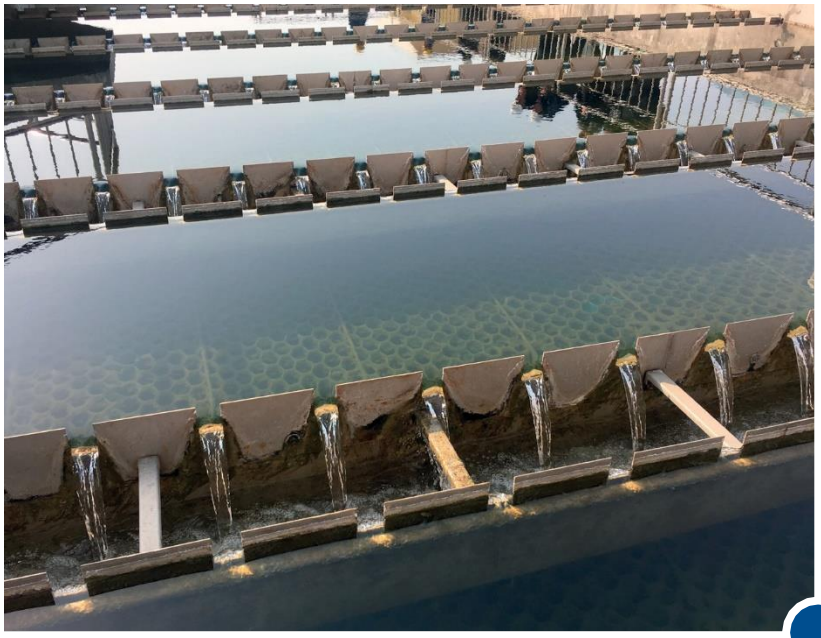
C. E. Shepherd Company, L. P.

CES Tubesettler Clarifier Series

Boosting the sedimentation efficiency



The application of inclined settling planes to increase the sedimentation performance is an unchallenged technology; it's applied in numerous plants worldwide covering hundreds of applications.
Tubesettler modules equalize the flow and facilitates the phase separation of particles, flocs or sludge.
Depending on the task, we provide designs with different angles, lamella spacings and chevron types for a controlled pathway of down-sliding sludge.

Tubesettler modules are customized to fit into round or rectangular tanks. The modules are made of rigid Polypropylene and can be placed directly into the tank sitting on a supporting structure.
Hewitech also provides additional customized package components such as support structure and Tubesettler effluent launders for the best benefit of our customers.

For remote projects we offer a local self-assembly option to reduce logistics and labor cost.

Features:

- **High settling efficiency**
- **Proven technology**
- **Made of rigid PP**
- **Up to 158° F temperature resistant**
- **Self-supporting structure**
- **Blue color for potable water application**
- **High mechanical strength**
- **Easy installation of modules**
- **Circular or rectangular tanks**
- **Onsite Self-assembly option**
- **Optional components**
- **Proven technology**

Design Diversity · Sustainable Efficiency · Custom-made Solution

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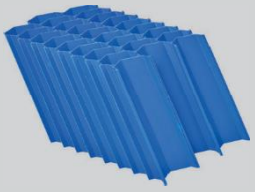
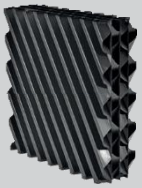
CES Tubesettlers

Water and waste water application				
				
model	**LS50**	**LS84**	**LS60**	**LS38**
Typical Application	Potable water Rainwater treatment Process water Humus tanks	Primary sedimentation Activated sludge Combined sewer overflow	Effluent Polishing Potable water Humus tanks	Effluent Polishing Aquaculture Rainwater treatment
made	Polypropylene	Polypropylene	Polypropylene	Polypropylene/PVC
Angle	45°-90° STD 55°/60°	45°-90° STD 55°/60°	60°	60°
Channel	Equidistant chevron	Equidistant chevron	Trapezoidal flutes	Trapezoidal flutes
Specific surface*	~3.95 ft2/ft3 (55°) ~3.34 ft2/ft3 (60°)	~2.13 ft2/ft3 (55°) ~1.91 ft2/ft3 (60°)	3.50 ft2/ft3 (average)	4.56 ft2/ft3 (average)
Hydraulic radius	.69 inches	.98 inches	.47 inches	.69 inches
Certification	KTW / NSF	KTW / NSF		
Color(s)	Black Blue (KTW/NSF)	Black Blue (KTW/NSF)	Black	Black
Std dimension				
Length (mm)	11.8” – 59”	11.8” – 59”	31.49” – 94.5”	31.49” – 94.5”
Width (mm)	11.8” – 59”	11.8” – 59”	11.8” – 23.6”	11.8” – 23.6”
Height (mm)	19.6” – 78.7”	19.6” – 78.7”	35.4”	23.6”

*) vertical projected surface = effective settling surface

Design Guideline for TUBE settlers

Most engineers are using Hazen’s law as design approach for the settling efficiency.

Hazen’s law links the settling velocity [V_S] of the target particle with the flow rate [Q] and the installed vertical projected surface [A_P].

The Hazen-velocity ($V_H = Q/A_P$) is the most important design parameter.

Particles with a settling velocity that is equal or faster than the Hazen-velocity will be removed.

Typical Design Surface Loading		
Feed water	**Hazen**	**Product Tubes**
Potable water	0.24 – 0.36 gpm/ft2	LS50 / LS60
Primary settling	0.36 – 0.49 gpm/ft2	LS85
MBBR effluent	0.16 – 0.2 gpm/ft2	LS50
Trickling filter effluent	0.2 – 0.32 gpm/ft2	LS50
Polishing	0.24 – 0.32 gpm/ft2	LS50 / LS60
Aqua culture	0.16 – 0.32 gpm/ft2	LS50 / LS38