



### Features:

- Transparent sedimentation tank for observation of the separation process
- Illumination for optimum visualization of the flow conditions
- Possible to use lamellas in the sedimentation tank

In sedimentation tanks, solids are separated out from suspensions under the influence of gravity. In this process, the density of the solid particles must be greater than that of the liquid. Tesca Separation in Sedimentation Tank Apparatus makes it possible to investigate the separation of solids from a suspension in a sedimentation tank.

First, a concentrated suspension is prepared in a tank, comprising water and the solid to be separated. A pump transports the concentrated suspension to the sedimentation tank. Upstream of the sedimentation tank the suspension is mixed with fresh water. The raw water generated in this way flows into the sedimentation tank via an inlet weir. A stirring machine is located upstream of the inlet weir. This prevents solids from sediments before entering the sedimentation tank. The treated water first flows under a baffle and then over a weir to the outlet.

The height of the weir on the outlet side is adjustable and allows the water level in the sedimentation tank to be changed. The water level above the inlet weir can also be adjusted.

Note: Specifications are subject to change.

### **Tesca Technologies Pvt. Ltd.**

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,  
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,  
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com  
Website: www.tescaglobal.com

This affects the flow velocity over the inlet weir.

A lamella unit can be inserted into the experimental section. This makes it possible to study how lamellas affect the separation process. The flow through the lamellas occurs from bottom to top. Above the lamellas is an outlet channel. The sidewalls of the outlet channel are designed as serrated weir. The flow rates of the concentrated suspension and the freshwater are adjusted via valves. This means the mixing ratio, and thus the concentration of solids in the inlet to the sedimentation tank can be adjusted. An electromagnetic flow rate sensor measures the flow rate in the inlet of the sedimentation tank. The flow rate and speed of the stirring machine are displayed digitally. The sedimentation tank is equipped with lighting to better observe the flow conditions.

### Specifications:

1. Separation of suspensions by sedimentation in the sedimentation tank
2. Transparent sedimentation tank with lighting for visualization of the flow conditions
3. Stirring machine in the inlet area of the sedimentation tank
4. Lamella unit can optionally be inserted into the sedimentation tank
5. Tank with a pump to create and transport a concentrated suspension
6. Mixture of the concentrated suspension with freshwater gives the raw water to be studied
7. Adjustment of the concentration of solids via valves for freshwater flow rate and suspension flow rate
8. Adjustable water level in the sedimentation tank and adjustable flow velocity in the inlet
9. Electromagnetic flow rate sensor for raw water
10. Imhoff cones for determining settleable substances of a water sample

### Technical Specifications:

Sedimentation tank (experimental section)

- LxWxH: 900x110x300mm
- Max. filling capacity: approx. 25L
- Material: clear acrylic

Lamella unit

- The angle of inclination of lamellas: 60°

Suspension tank

- Capacity: approx. 85L
- Material: stainless steel

Pump

- Max. flow rate: 70L/min
- Max. head: 6m

Stirring machine

- Max speed: 330min<sup>-1</sup>

Measuring ranges

- Flow rate: 30...600L/h
- Speed: 0...330min<sup>-1</sup>

### Experiments:

- The basic principle for the separation of solids from suspensions in a sedimentation tank
- Determine the hydraulic loading rate
- Influence of the following parameters on the separation process:
  - Concentration of solids
  - Flow rate
  - Flow velocity in the inlet
- The water level in the sedimentation tank
- Investigation of the flow conditions
- How lamellas affect the sedimentation process

### Requirements:

- Mains Power 220 – 240V @ 50Hz, 1Ph

Note: Specifications are subject to change.

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