FLUID MECHANICS

SEDIMENTATION TANK

DL DKA022

This trainer has been designed for the study and visualization of the natural phenomenon of sedimentation, in continuous operation.

Particles are denser than the fluid containing them and they fall to the bottom of the tank because of the gravity effect. Sedimentation process is used to clarify all types of waters, decreasing their turbidity.

The system includes a supply of calcium carbonate (CaCO3) to be used as additive. In addition, the mixing tank has a stirrer to prevent the sedimentation of the suspension.

TRAINING OBJECTIVES

- Study of the basic principle of separation of solids in suspension by sedimentation tanks
- Visualize and study the process of sedimentation in a continuous basis in a settling tank
- Determination of sedimentation process efficiency for:
  - Different solids concentrations
  - Different flow rates
  - Different positions of the baffle plate
  - Different depths of the baffle plate
- Display and study the current lines for:
  - Different solids concentrations
  - Different flow rates
  - Different positions of the baffle plate
  - Different depths of the baffle plate

TECHNICAL DESCRIPTION

According to the characteristics of the suspension (heterogeneous mixture of dispersed solid particles in a fluid), particles can settle down in different ways depending on their density, their concentration in the solution and the density and viscosity of the fluid in which are spread.
The sedimentation tank has a lower mixing section in which a suspension is prepared by adding the additive whose sedimentation can be studied.

Requirements:
Power supply: 230V/50 Hz.
Tap water intake.

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TECHNICAL DATA

Sedimentation tank:

- Material: Methacrylate transparent
- Capacity: 80l approx.
- Dimensions: 1000 x 400 x 200mm

Suspension tank:

- Material: Fiberglass
- Capacity: 120l approx
- Continuous mixing system

Other features:

- Anodized aluminum framework
- Flow control performed by a pressure control system
- Recirculation pump. H =20 + 160 m; Q =21 + 10l/h;
- P =0.75 kW. Ideal for dirty water
- 2x Imhoff cones, 1 liter capacity. Cleaning brush included
- 2x 1 liter beakers / 1x 2l breaker
- Injection ink system for better experiment visualization.
- Suspension and spoon material included