Suspended load sampler, Delft bottle

04.31.01

The Delft bottle type suspended load sampler is the standard set for sampling sediment particles larger than 50 µm in rivers and other water courses. This set is applicable in velocities up to 2.5 m/s and can be used at any depth.

- Measuring suspended sediment transport in rivers and other water courses
- The sampler can be used with or without frame
- Can be used at any depth
- Sturdy construction
- Easy to use

Description

The suspended load sampler Delft bottle is used to measure suspended sediment transport in rivers and other water courses, from the surface down to 0.1 metres above the river bottom. The water containing sediment flows through a bottle shaped collector. The shape induces a low pressure at the rear part of the device, so the water enters the nozzle of the sampler with almost the same velocity as the undisturbed flow.
When the water reaches the wide sampling chamber, the velocity decreases and this causes the sediment material to settle. The sampler is made with a sturdy construction. Because of the weight of the instrument, a davit with depth gauge and winch is required for handling. Please note that simultaneous measurement of the water speed is necessary.

The suspended load sampler is easy to use. The sampler can be used in two ways:

- With no frame, suspended on a cable for all depths from the surface to 0.5 metres above the bottom. A tail fin keeps the nozzle in up-stream direction
- With frame, standing on the bottom, the height can be set to 10, 20, 30, 40 and 50 centimetres from the bottom.

Applications

- Measuring suspended sediment transport in rivers and other water courses

Set contains

- Delft bottle sampler
- Nozzle 1.9 cm², straight
- Nozzle 1.9 cm², bended
- Nozzle 3.8 cm², straight
- Nozzle 3.8 cm², bended
- Measuring glass, content 100 millilitres
- Frame for Delf bottle, for use bottom placement
- Wooden case for Delft bottle

Specifications

Suspended load sampler, Delft bottle	
Particle size	>50 µm
Maximum water velocity	2.5 m/s
Maximum sample depth	> 10 m
Product material	Steel, other material
Rod or cable operated	Cable
Sample stored in	Bottle
Sample volume	100 ml
Package size	120 x 94 x 50 cm
Weight	93 kg

Bed-load transportmeter, type Arnhem

04.32

The bed-load transportmeter, type Arnhem is a sampler, used to measure bed-load of coarse sand and fine gravel in rivers and in other watercourses.

- Bed transport meter frame has a stabilising tail fin
- Used for measuring bed-load of coarse sand and fine gravel
- Mouth permits water and fines to flow through
- Mouth shaped to keep initial water speed

Description

The bed-load transportmeter, type Arnhem is a streamlined sampler mounted in a frame. It consists of a mouth followed by a basket of fine wire meshing (width of the mesh is 300 µm). It is used to obtain samples of sediments and gravel rolling along the river bed.

The sharp decrease of the velocity in the wide sampling chambers causes the sediment material to settle there. The mouth allows water and fine particles to pass through and is shaped to maintain the initial water velocity. A tail fin mounted on the frame keeps the sampler in up-stream direction.

The results of the measurements are influenced by the shape of the bed (ridges, dunes, flat beds, etc.). For a successful measurement knowledge of the relief of the bed is essential. The sampler can be discharged on board using the sample trough.

Applications

- Sediment transport research

Set contains

- Sampler
- Bed transport meter frame with stabilising tail fin
- Lever
- Sample trough

Specifications

Bed-load transportmeter, type Arnhem

Bed-load transportmeter, type Arnhem	
Maximum sample depth	> 10 m
Product material	Stainless steel, iron, other material
Rod or cable operated	Cable
Package size	200 x 90 x 60 cm
Weight	55 kg

Visibility disc, according to Secchi

13.50

The visibility disc according to Secchi is used to measure water transparency or turbidity in bodies of water. This is a simple device to determine the visibility depth. It is lowered in the water with a wire.

- Internationally used method
- Measuring water transparency or turbidity in bodies of water
- Immediate assessment of water condition
- Easy and simple to use

Description

The visibility disc according to Secchi is a simple, means of determining the visibility depth. The visibility disc is lowered into the water with a wire, and when the disc is no longer visible in the water a reading of the depth is made by means of the marks on the rope.

The disc is then lowered another 0.5 metres and pulled up slowly. When the disc becomes visible, the second reading is done. The visibility depth is determined by taking the arithmetic mean of both measurements. The visibility disc is used according to an internationally used method. After use, you can immediately assess the condition of the water.

Water turbidity

Transparency can be affected by the colour of the water, algae, and suspended sediments. Transparency decreases as colour, suspended sediments, or algal abundance increases. Water is often stained yellow or brown by decaying plant matter. In bogs and some lakes, the brown stain can even make the water the colour of strong tea. Algae are small, green aquatic plants whose abundance is related to the amount of plant nutrients, especially phosphorus and nitrogen. Transparency can therefore be affected by the amount of plant nutrients coming into the lake from sources such as sewage treatment plants, septic tanks, and lawn and agricultural fertiliser. Suspended sediments often come from sources such as resuspension from the lake bottom, construction sites, agricultural fields, and urban storm runoff.

Transparency is an indicator of the impact of human activity on the land surrounding the lake. If transparency is measured through the season and from year to year, trends in transparency may be observed. Transparency can serve as an early warning that activities on the land are having an effect on a lake.

Applications

- Determination of the depth of various layers of sediment before and during the sampling procedure of water bottoms.
- Determination of the positions of various layers of sedimentation in settling-basins or tanks.

Specifications

Visibility disc, according to Secchi	
Maximum measuring depth	3 m
Reading accuracy	10 cm
Package size	110 x 10 x 10 cm
Weight	2.7 kg

Sediment level stave, standard set

13.51

The sediment level stave is part of the standard set to measure the depth of sediment down to a depth of 4 metres. A sediment level stave is a sounding rod used for sounding the sediment layers in surface waters. Either a point or a sediment grid can be mounted to the bottom.

- Standard set can be extended to 7 metres
- Working from the edge possible with elbow joint
- Set contains 4 sediment measuring rods
- Allows pricking through to more solid ground underneath

Description

The sediment level stave is part of the standard set to measure the depth of sediment down to a depth of 4 metres. The standard set can be extended to 7 metres. A sediment level stave is a sounding rod used for sounding the sediment layers in surface waters. Either a point or a sediment grid can be mounted to the bottom. The set comprises 4 sediment measuring rods of anodic aluminium with screw couplings. These rods are 1 metre long, and have a diameter of 25 millimetres. The sediment measuring rods are marked out in 5 centimetres markings.

The set also includes an elbow fitting for the measuring rods so that depth measurements in the sediment can be taken at an angle. A stainless steel grid and core point make it possible to probe the lower boundary of the sediment layer. In addition, this set makes it possible to penetrate to more solid substrate. The set is presented in a carrying bag.

Applications

- Geohydrological research
- Determination of the transition between water and sediment
- Determination of the transition between sediment and the solid bed of the water course
- Determination of the depth at the top of the sediment layer at the bottom of the water

Specifications

Sediment level stave, standard set	
Maximum measuring depth	4 m
Reading accuracy	5 cm
Weight	2.7 kg