



VAN VEEN GRABS

OPERATING INSTRUCTIONS

Description

The stainless steel Van Veen grabs are used for taking disturbed samples from the bottom of lakes, rivers, etc. Various versions are available. The smaller versions are manually operated.

Soil type

The Van Veen grab can be used for sampling the top layer of consolidated sediment consisting of silt and/or sand. The Van Veen grab is not suitable for the sampling of hard or extremely soft top layers.

In the former case there is a high probability of no sample being taken and in the latter there is a chance that the grab will dig too deep, in which case a sample will be taken but not of the top layer. In the case of sediments with a very soft and watery top layer there is a reasonable chance of the fine fraction being rinsed out of the grab.



Accuracy of the sample

A sample taken using the Van Veen grab will always be disturbed. This makes it impossible to provide a correct description of the local structure of the sediment. Inaccuracies can arise in the sampling because:

- The fine fraction may be rinsed away during sampling;
- The penetration depth is unknown and depends upon soil composition;
- The grab can drop through a thin layer of silt so that the depth in the sediment at which the sample was taken is unknown;
- Relatively more top material is taken than material from the layer below due to the semi-circular shape of the grab.



For a more accurate description of the sediment structure, the use of a transparent sampling device with piston is recommended. The following were specially developed for sediments: Multisampler (penetration by manual force only; not closed at the bottom against loss of sample) or the Beeker sediment core sampler (can be knocked in, closure by inflatable bellows in sampling head).

Specifications

Item no.:	Description
04.30.01	Van Veen grab (stainless steel), capacity 0.5 litres, sampled surface approx. 126 cm ²
04.30.02	Van Veen grab (stainless steel), capacity 2 litres, sampled surface approx. 260 cm ²
04.30.03	Van Veen grab (stainless steel), capacity 6 litres, sampled surface approx. 480 cm ²
04.30.05	Van Veen grab (stainless steel), capacity 12 litres, sampled surface approx. 880 cm ²

Max. sampling depth:	> 30 m
Sampling volume (max.):	0.5 - 12.0 l
Disturbed/undisturbed:	disturbed
Type of sample:	loose material
Sediment type:	soft/medium
Profile description:	no
Suitable for use in flowing water:	flow rate of max. 0.2 m/sec
Usable in situations in which the pores are not filled with water (such as powders):	yes
Operation:	manually or with davit
Weight of the set:	2 - 41 kg

All it takes for environmental research

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Operation

All Van Veen grabs operate in the same way.

At the surface the jaws are opened and fixed into position using a catch. The Van Veen grab must be lowered slowly and steadily to prevent the catch from being released too early (difficult on a boat that is moving about in rough water). Sediment residues on the outside of a closed (and empty) Van Veen grab indicate that the sampler was closed too early.

There are holes in the jaws so that air can escape while the sampler is being lowered and water can escape while the sample is being taken.

As soon as the jaws make contact with the bottom the catch is released. When the grab is raised on the cable, the jaws close automatically due to the lever effect of the rods.

The quantity of sample that is taken mainly depends upon the compactness of the soil. A heavier grab takes a larger sample than a light one. Therefore all versions are equipped with weights.

The cable also has a weight to reduce the deviation from the vertical in a stronger currents.

It is recommended that at least 6 samples be taken from each site and the conclusion based upon all the samples taken. This is particularly important if the soil is irregularly formed and made up of various materials.

Despite the high closing force, a stone or root may prevent the jaws from closing fully.

In such cases the sample is not representative; smaller components will be washed out while the grab is brought to the surface.

Once at the surface the grab is emptied and cleaned for the next sampling operation.



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