

GRAVITY CORE SPECIFICATIONS

Description:

A gravity corer is an open tube fitted with a weight so that gravity can force it sufficiently deep into the sediment to isolate a sediment sample. A large number of gravity corers have been developed which vary in complexity from simple tubes to heavy and sophisticated instruments. The simplest possible corer is a piece of plastic tubing. The most basic sampling device used to collect core samples from the sea floor.

Specifications:

1. Completely made of marine grade stainless steel materials except the weights.
2. Weights are of lead material duly painted and each weight carries (Approx.) in 5x10 kgs. Sections
3. Core barrel is 2" NB (60.3 mm OD) and 0.5 mts long.
4. The core catcher is made of Phosphor Bronze petals on SS ring and the core liner is of PVC tube.
5. Core catchers- 6 No's. , PVC core liners- 6 Nos. Screwed Nose

Soil type:

The Gravity or Drop core sampler can be used for sampling the soft and firm soils. The Gravity or Drop core sampler is not suitable for the sampling of hard layers.

A sample taken using the gravity core sampler will always be undisturbed. This makes it possible to provide a correct description of the local structure of the sediment.

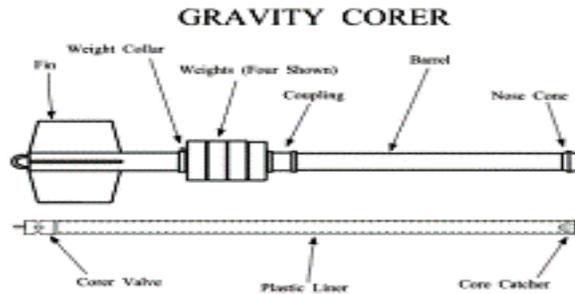
System description

A gravity corer consists of a steel tube in which is inserted a plastic liner to retain the core sample. The penetrating end of the tube is fitted with a cutter and a concave spring-steel core-catcher to retain the sample when the corer is retracted from the soil and recovered to the ship.

A set of heavy weights, is attached at the top end of the tube above which is a fin arrangement to keep the corer stable and vertical during its fall to the seabed. A deployment and recovery line is attached to the top of the corer. Normal practice is to lower the device to within 10m of the seabed before releasing it. Gravity core tubes range in length from 1m up to 6m. The standard tube is 102mm external diameter with a 90mm external diameter plastic core liner.



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Operation:

Gravity corers are surface deployed devices capable of recovering bottom samples. The gravity corer is dropped from a limited height and penetrates into the soil merely under gravity. The corer consists of a metal pipe with a removable lining of plastic tubing typically 2-3 feet in length. A heavy weight sits atop the pipes. The core is lowered over the side of the ship using a winch and wire rope and is allowed to free fall into the sediments. A core catcher helps trap the sediments in the tubing and the corer is brought back to the surface and brought aboard the ship.

The penetration forces, if recorded, give information about the strength of different depths in the material, which may be the only information required, with samples as an incidental benefit. This technique is common in both civil engineering site investigations (where the techniques tend towards pile driving) and geological studies of recent aquatic deposits. The low strength of the materials penetrated means that cores have to be relatively small.

