

SOIL CORE SAMPLERS

Hand-operated equipment can be applied for soil research up to a depth of 5 to 10 meter.

In this product information leaflet a number of gouge augers are described.

Their mutual quality is that they are all fitted with an almost half cylindrical operational part with parallel cutting edges running vertically, justifying the name gouge auger. This operational part may vary in length as well as in diameter. The most suitable length depends on the penetration resistance, the substance of the soil and the required boring depth.

The longer the operational part the more vulnerable the auger is to torsion.

The selection of the most suitable diameter depends on the composition and the structure of the soil and on the purpose of the research.

In general a smaller diameter is applied in soils with a fine and/or dense structure, by comparison to soils with a loose structure (for instance young swampy peat).

04.02 Bi-partite gouge augers

The bi-partite gouge augers can be extended by coupling an extension rods.

In this way samplings can be carried out in a very short time and greater depths can be reached.

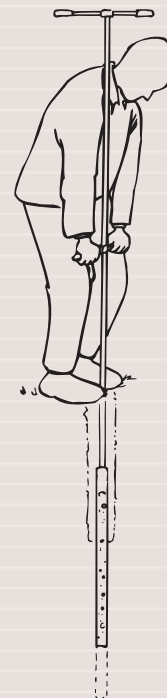
The gouge augers are delivered in various standards sets:

- ❑ One set with a bayonet connection (art. no.: 04.02.SA) and gouge augers with various lengths and diameters, extension accessories and a strong carrying bag for transport in the field.
- ❑ The same set with conical screw thread connection (art. no.: 04.02.SB).
- ❑ A set with conical screw thread connection for sampling more solid layers of soil with gouge auger, Edelman auger, extension rods, hammer with nylon heads (impact absorbing design), push-/pull handles, various accessories and a strong carrying bag for transport in the field (art. no.: 04.02.SC).

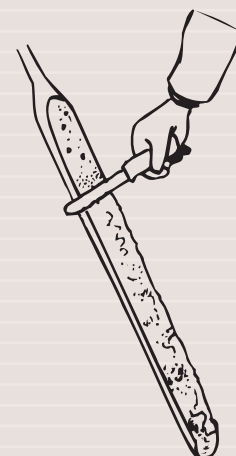


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After a sample has been taken with the gouge auger, it is pulled up using the push-/pull handle.



The sample is cut off using a spatula.



Bi-partite gouge auger set (SA)



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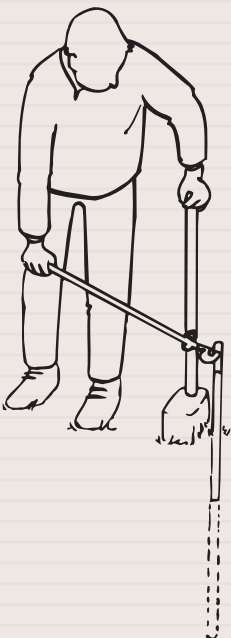


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Using the impact absorbing hammer the gouge auger is hammered into the ground.



The Purckhauer gouge is pulled from the soil using an extraction system.



04.01 Single gouge augers

The single gouge augers can not be extended and are supplied in various lengths and diameters.

The single gouge augers too are delivered in standard sets:

- ❑ A set for sampling more or less soft soil layers (art. no.: 04.01.SA) with two gouge augers having different lengths but the same diameter, packed in a strong carrying bag.
- ❑ A set for sampling of tougher layers (art. no.: 04.01.SB) with a gouge auger of a heavier design, an impact absorbing hammer and accessories plus a carrying bag.
- ❑ For the very hard soils and soils containing gravel a set with a gouge auger of the Purckhauer type (complete) with hammer and mechanical extraction system accessories and a strong carrying bag (art. no.: 04.01.SC).

Advantages

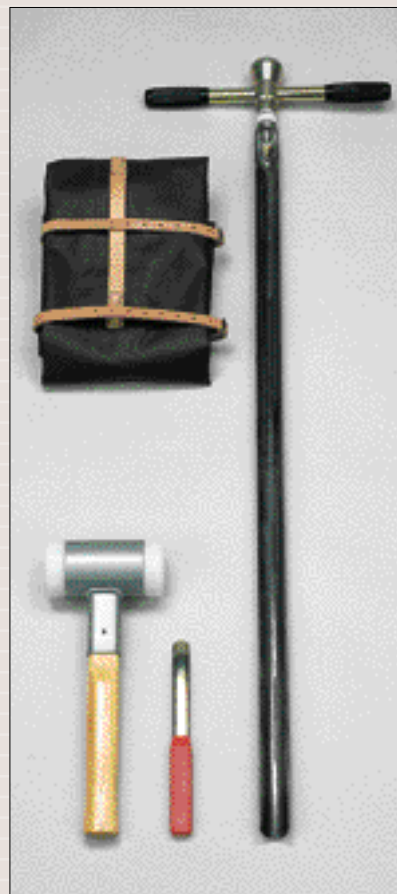
The advantages of gouge augers by comparison to other types of hand augers are:

- ❑ A greater profile survey with each sample because of the relatively longer operational part of the gouge auger.
- ❑ A greater soil depth for each stroke results in the swifter reaching of greater depths.
- ❑ Because the gouge auger cuts a core from the soil the samples obtained are virtually undisturbed.

Applications

Because of the minimal disturbance of the sample, the gouge auger is frequently applied in profile research for:

- ❑ Soil mapping.
- ❑ Soil suitability reviews.
- ❑ Educational purposes.
- ❑ Root research.
- ❑ Soil sampling for fertilization research.
- ❑ Clay distribution research.
- ❑ Paleontological research.



Single gouge auger set (SB)



Single gouge auger set (SA)



Single gouge auger set, Purckhauer (SC)

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04.04 Gouge auger set for stepwise sampling

The set consists of three bi-partite gouge augers with different diameters. By first taking a sample with the gouge with the largest diameter and subsequently with gouges having smaller diameters cross-contamination among the samples is avoided. The gouge augers can be pushed into the soil, or hammered (with an impact absorbing hammer).

Because of the short operational length and the diminishing diameters the set is very suitable for profile research (nitrate research) in soils with a somewhat higher penetration resistance.

04.03 Gouge auger model P

This bi-partite gouge auger distinguishes itself from other gouges by the cylindrical tapered cutting head at the bottom side of the gouge that, when the auger is pushed into the soil, cuts a cylinder shaped piece from the soil. As a result the auger does not need to be revolved around its axis after being inserted, as the other gouge augers

need to be (less sensitive to torsion). The tapered cutting head also holds the sample better.

For this auger roughly the same applications apply as for the ordinary steel gouge augers. This type of auger is particularly suitable for soil mapping because of its small diameter and the cylindrical cutting head.

04.08 Dachnowsky probe

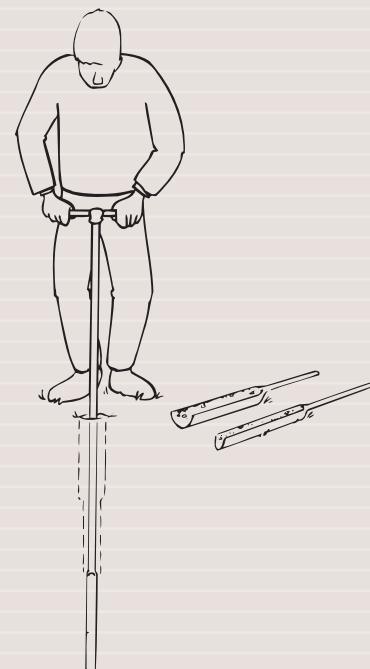
The Dachnowsky probe is a special sampler used for depth specific sampling in soft soils (peat soils, soft clay). In soft soils it is not necessary to pre-auger a hole.

The sampler has a stainless steel sampling tube (Ø 30 mm) with a cutting edge at the bottom. A rod leading through the top of the sample tube ends in a cone.

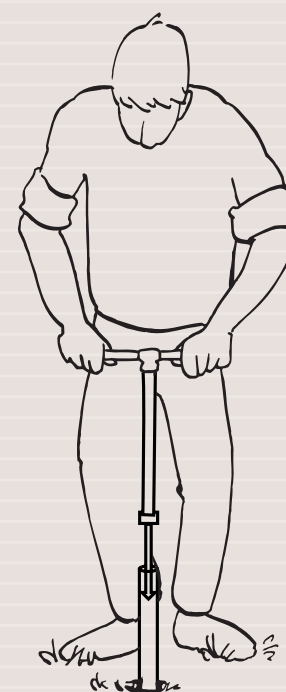
The sample has a length of 30 cm and a diameter of 26 mm.

The sampler can be used for environmental-, geological- and C-14 research (age determination).

The gouge auger with the smallest diameter is used for the deepest sample.



With the rod in the sampling position the Dachnowsky probe is pushed into the soil.



Set for stepwise sampling



Gouge auger model P



Dachnowsky probe



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The grass plot sampler is pushed into the soil.



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04.06 Gouge auger set for top layers

A correctly dosed fertilization is a condition for high yield and good quality.

From economic and ecological perspectives it is therefore necessary to check the state of the soil.

After analysis of the samples taken with this set it is possible to determine a fertilization program.

Two gouge augers have been included in the set for sampling top layers.

The auger for arable land, with an operational length of 25 cm, is used to take samples from the furrow.

The mineral auger, also included in the set, is used to take samples from the top layer up to a depth of 60 cm.

Because of their operational length and small diameter these gouge augers are pre-eminently suitable for sampling of the top layers of arable land, in particular for a nitrate- or a fertilization research, etc.

05.03 Grass plot sampler, small

05.10 Grass plot sampler, large

These stainless steel gouge augers with different dimensions consist of a steel auger pipe, a collecting bucket and a stick with a steel handle.

The auger pipe is filled by pressing the collecting bucket with your foot. Because of the conical shape of this pipe the sample is easily pushed toward the collecting trough when the next sample is taken.

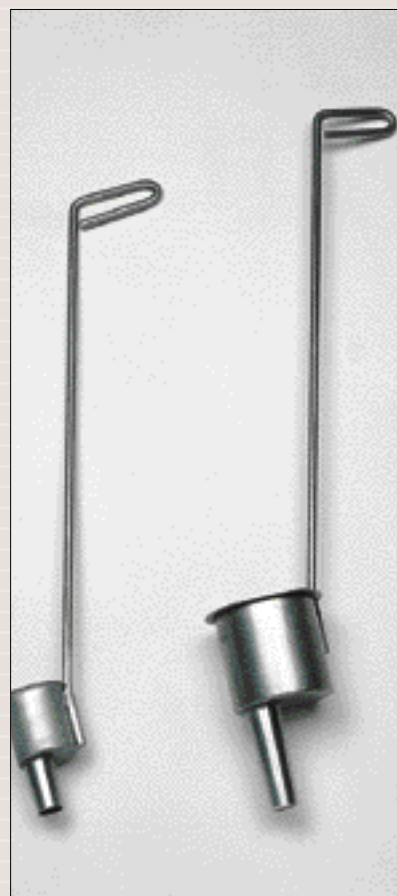
The correct number of samples per hectare depends, among other factors, on the type of crop, the relief and the type of soil. In case of grassland it is required to take 30 samples per hectare.

It is possible to take samples of the top 5 cm (resp. 10 cm) of grass covered areas, for root- and/or fertilization research, quickly with these type of augers.

The grass plot sampler is particularly suitable for research in grassland farming but also in horticulture and for the Parks and Public Gardens Department.



Gouge auger set for top layers



Grass plot samplers