# GEONOR THIN WALL, STATIONARY PISTON SAMPLERS

## (Ø 54, 75 AND 100 MM)
## MODELS K-100 AND K-200

## FEATURES

- For undisturbed samples in very soft to stiff clays
- Stationary piston to avoid disturbances in overpressured or very soft or loose soils
- Appropriate for sampling above and below ground water level, at 0 to 30 m depth
- Combination use: Extension rods and tubes of the Geonor vane instrument H-10
- Can be used with most pushers, penetrometers
- Designed by the Norwegian Geotechnical Institute (NGI)

# THIN WALL, STATIONARY PISTON SAMPLERS

## DESIGN

The Geonor thin wall, stationary piston samplers are designed for taking undisturbed cores in very soft to stiff clays. Excellent undisturbed samples are also obtained in loose to medium-dense sands if the bore hole is filled with drilling mud. With a sampling cylinder in steel (model K-200), various sample diameters are available: 54, 75 and 100 mm. with lengths between 500 and 800 mm. With a composite sampling cylinder, protected by a steel cylinder (model K-100), the sample diameter is 54 mm and its length is 700 mm. The use of a stationary piston when sampling, eliminates the risk of disturbance of the sample by a non fixed piston head, in particular with overpressured or very soft soils. The sampler is adapted for quick operation with when using a drilling tower

## BORING METHOD

With thin-walled, stationary piston type samplers, coring is generally carried out as displacement boring (or continuous sampling advance). The sampler is pressed by the extension tubes and rods, down to the sampling depth, using drilling mud only for sands. At the top of the soil to sample, the piston is unlocked from the sampling cylinder. Thereby the piston, piston head and extension rods remain fixed, while the sampling cylinder is pressed down by the extension tubes. When the cylinder is filled, both cylinder and piston are pulled up. Vacuum at the piston head is provided by a rubber packing which also prevents contamination of the sample. The cored sample is extracted once in a laboratory.

In order to avoid disturbances, the wall of the sampling cylinder is thin and the cutting edge is kept very sharp for clays. The piston sampler K-100 can be modified to core (disturbed) Ø 54 mm samples in sand by using a sand retaining ring and a tougher cutting edge.

The samplers can be delivered with a manually operated 5 ton rack jack with an anchoring frame but can be used with a large variety of pushers or CPT penetrometers. The extension rods and tubes can also be used with the Geonor field shear vane instrument H-10, see separate leaflet.

## QUALITY OF SAMPLES

Experience from great number of samples has shown that for normally consolidated clays, unconfined compression tests on samples taken by the sampler give strength values which as an average, are 8% above the undrained shear strength found by vane tests. For quick clays the corresponding figure is 15%. Undisturbed samples and reliable values of the undrained shear strength have been obtained in clays with a wide range of plasticity. A more detailed description of the results obtained with the sampler is given by R.C. Vold in the NGI publication No. 17.

### TECHNICAL SPECIFICATIONS

| Model: | K-100 | Model: | K-200 |
|---|---|---|---|
| Sample cylinder: | Composite | Sample cylinder: | Steel |
| Cylinder ID: | 54 mm | Cylinder ID: | 54, 75, and 100 mm |
| Cylinder length: | 768 mm | Cylinder length: | Max. 880 mm, Min. 585 mm |
| Sample length: | 700 mm | Sample length: | Max. 800 mm, Min. 500 mm |
| Extension tubes: | Ø36 x 1000 mm | Extension tubes: | Ø16 x 1000 mm |

### ORDER REFERENCES

| Part No. | Equipment | Part No. | Equipment |
|---|---|---|---|
| 32000 | Sampler K-200, complete | | **Manual insertion/extraction** |
| 36000 | Sampler K-1 00, complete | 16000 | Ball cone clamp 27-388 mm |
| 65400 | Extension tubes | 19200 | Anchoring frame |
| 65500 | Extension rods | 14800 | Rackjack, 5 tons capacity |

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