

AquaLock

Precision samples with Sonic technology



Do you need

- Perfect samples taken directly from desired depths?
- High speed sample production?
- High quality samples of mixed geology?
- Long samples with low disturbance, even from coarse sand?

The patented AquaLock is a soil sampler with absolutely unique features. The AquaLock is vibrated down directly to sampling depth where it takes a long and practically undisturbed sample.

The AquaLock combines the advantages of the very rapid, smooth and powerful Sonic drilling technique with the advantages of a piston type core sampler. It can be used for continuous sampling or discrete sampling.

What makes the AquaLock unique?

- It is the fastest and most reliable sampling tool for alluvial deposits in combination with a Sonic drill.
- High quality long core samples in a matter of minutes.
- Piston used to extrude sample.
- Piston is valve-operated.
- You can sample without casing thanks to the watertrap-locked piston.



1. Valve system
2. Filling opening
3. Piston
4. Cutting shoe or ringbit
5. Water column

AquaLock and ISO 22475-1:2006 (geotechnical investigation)

According to this standard the AquaLock can be defined as a "thick walled piston sampler". Core sample quality achievable is A2/B3 (Quality A1 being the quality of a pushed cutting ring and C5 being fully disturbed).

Wet sands or mixed layers

Before drilling, the AquaLock is filled with water, which locks the piston below in the cutting shoe. When you vibrate it down, the AquaLock stays empty until you decide to take a sample.

You unlock the piston by lowering push-rods through the drill pipe, which opens the valve on top of the AquaLock, allowing the piston to move freely and take an undisturbed sample.

After sampling the spring push rod is removed allowing the valve to close, which creates a vacuum that holds the sample during retrieval of the AquaLock sampler. Once retrieved, you apply high pressure water behind the piston for sample extraction.



What can you use the AquaLock for?

Environmental sampling: You can accurately and rapidly locate impermeable layers, describe an undisturbed soil profile and take sub-samples for physical and chemical analysis.

Foundation research: You can take cost efficient and accurate samples with A3/B3 (ISO 22475-1:2006) quality to large depths.

Remediation drilling / well installations and cold-heat exchanging systems: In one run you can take a sample for profile description and, if required, install a well.

Archaeological sampling: You can rapidly take samples of a large area in a dense grid on archaeological remains.

Off-shore sampling of water bottoms: With the AquaLock you can produce long practically undisturbed cores of extremely mixed geology.

Pre-investigation of dewatering projects: You can do extremely rapid soil profiling, followed by, if required, well installation.

Mineral sampling: In mixed geology you can achieve highly productive soil sampling with accurate layer thicknesses and sample composition.

What do others say about AquaLock?

John Rae, Mining geologist, Columbia:

“The AquaLock gives us much better samples than any technique we used before. Days of traditional drilling with an expensive geologist waiting for low quality samples are now compressed in only a few hours with everybody happy and satisfied. A 30 meter deep profile is retrieved, examined and packed for analysis before the first morning coffee break.”

Gennady Voronovitch, Geocentr, Russia:

“All drilling work was conducted with our Compact Sonic Drilling machine of Eijkelkamp SonicSampDrill, which we have installed on our self-levelling floating platform ‘Geocentre-Sonic’. The use of the CompactSonic with the AquaLock core barrel system made it possible to perform all various assignments using one single machine and the client was astonished about our production speed and quality. They even came on board to see with their own eyes why the use of sonic technique works so much faster and more accurate. As a result we are in a very good position to win additional assignments, leaving the competition virtually without a chance.”



AquaLock specifications

AquaLock	50	70	100
Sample Ø x length (mm)	50 x 2000/3000	70 x 2000/3000	100x2000/3000
Coring ring I.D. (standard options) (mm)	48, 46, 44, 42, 46 with Tungsten bit 48 for core catcher	66, 64, 65 with Tungsten bit 66 for core catcher	96, 92, 96 with Tungsten bit 96 for core catcher
For drill rods	GP63	GP88 / 3"	GP100 tr.
Overriding with casing (ID x OD)	GP100 (77 x 100 mm)	5,5 " (107 x 142 mm)	6 5/8" (127 x 168mm)
Overall diam. and body length (mm)	70 GP63: 2346 (or 3346)	92 GP88: 2629 (or 3629)	120 GP 100: 2690 (or 3690)
Material type	stainless steel	stainless steel	stainless steel
Liners available	yes	yes	yes
Core catchers available	Synthetic and stainless	Synthetic and stainless	Stainless
Patents	US 6.695075 B2	EU 1.154.076	NL 101 5147

Let us carry out your pilot projects!

Eijkelkamp SonicSampDrill is also your professional and reliable partner for carrying out pilot projects. For more information or personal advice please contact our sales department.