

GEOTHERMAL DRILLING

INNOVATIVE TECHNOLOGY OF
THE PRESENT

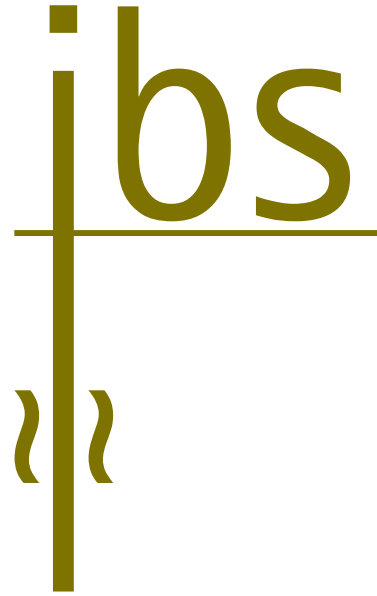


www.soundcoredrilling.com

 +49 173 6627 016

GEO THERMAL ENERGY





(„Injektions-Bohrsonden-System“)

IBS-System - How does it work?

Drilling a geothermal well (closed loop) requires large rigs and compressors.

A large onsite footprint and high fuel consumption is part of the job. Mud rotary rigs are smaller but require mud pits and leave a rather messy site behind. Drillers have to be physically strong and well trained to work profitable. Investment and maintenance are considerable.

Typical drilling procedure:

1. Site setup, preparation of mud pits or containers
2. Drilling to required depth
3. Tripping out
4. Installation of Geothermal loop
5. Grouting
6. Site clean up

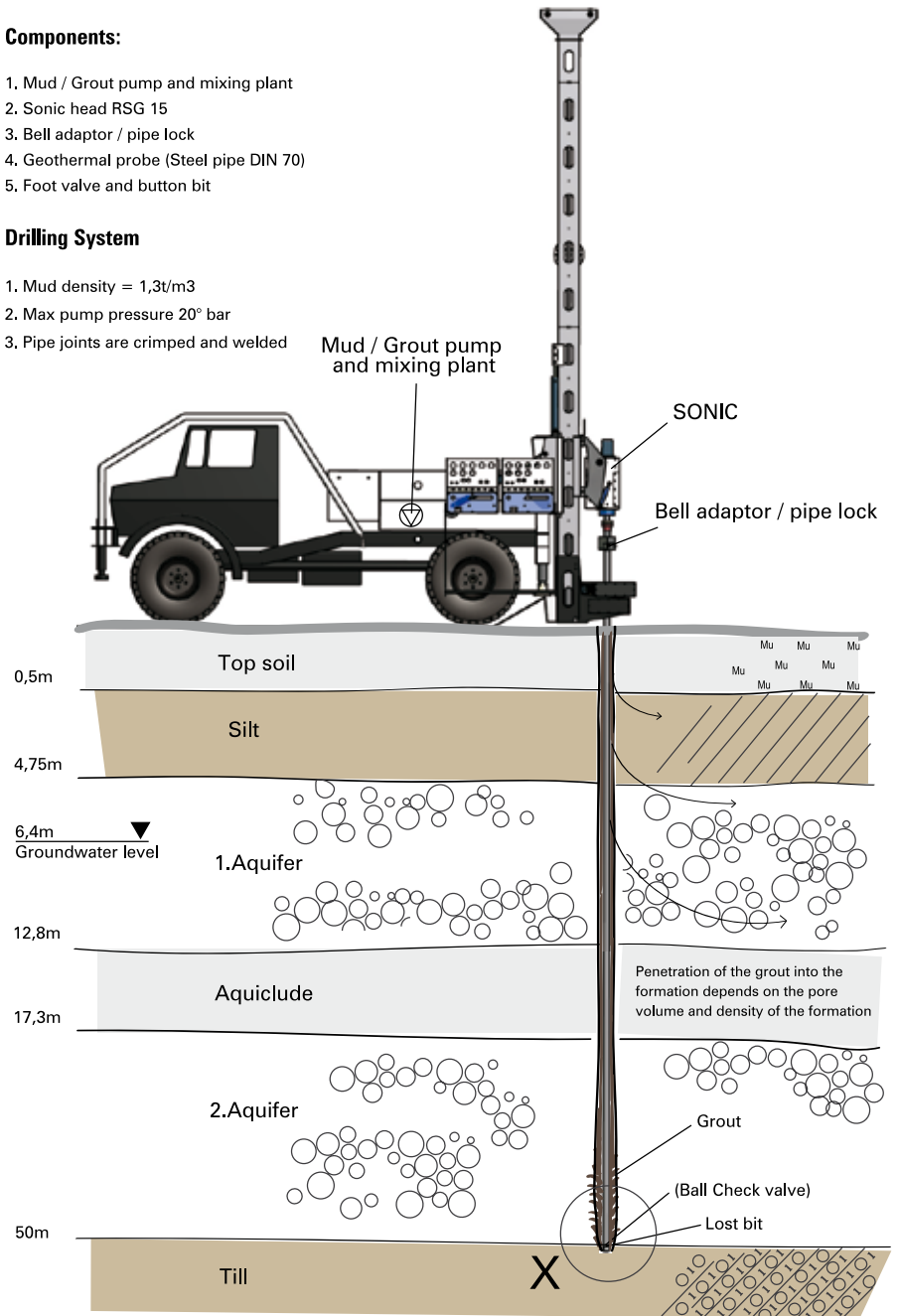
Until the loop hits bottom of the hole a lot of things can go wrong... Artesian layers may be intercepted, these have to be controlled with either mud or casing. Collapsing holes pose another frustrating challenge. Breaking of drill tools ... etc.

Components:

1. Mud / Grout pump and mixing plant
2. Sonic head RSG 15
3. Bell adaptor / pipe lock
4. Geothermal probe (Steel pipe DIN 70)
5. Foot valve and button bit

Drilling System

1. Mud density = 1,3t/m³
2. Max pump pressure 20° bar
3. Pipe joints are crimped and welded



IBS

The system is based on Sonic. It provides the force to overcome wall friction and penetration. The objective of the IBS solution is to combine all 3 basic drilling procedures (drilling, installation and grouting).

It does not require drill tools since the steel probe takes its place.

It is the most cost competitive system in the geothermal and other markets because:

1. Lower investment
2. Small foot print
3. 2 men crew
4. No mud pits or containers
5. No drill tool handling
6. Safe down hole environment (permanently cased off)
7. Minimal annulus
8. Excellent saturation of pore volume
9. Protection of aquifers
10. Higher watt / meters result
11. Lighter rig specifications
12. Can be used as a soil investigation rig (sometimes required to determine the watt extraction)
13. Directional or inclined holes are possible
14. Drills overburden and most rock

Sonic is the future and will replace traditional drilling applications to a depth of 200 m. It can integrate mud, air and diamond applications and reach depth beyond > 200 m. Its main objective is to deal with overburden.

System requirements:

1. Self-contained sonic drill rig with minimum of 15 kN sonic power and 50 kN Diesel or electric power
2. Mud mixing plant with the option of permanently adjusting the concentration of the mud to match the geology
3. Check valve and appropriated drill bit
4. Pipe drive chuck and water swivel
5. Pipe crimping set
6. Orbital welding unit

Sonic is a fantastic tool for all companies working in the; environmental, geothermal, geotechnical and geo construction etc. environment.

Soundcore GmbH provides:

1. Sonic heads, RSG 10, 15, 20 and 25
2. Self contained Unimog drill rigs.
3. Sonic tooling and bits
4. Training
5. Project support

Sonic technology is a breakthrough in the drilling field. The IBS system builds on sonic power widening its potential to penetrate new markets.

soundcore gmbh

As a manufacturer of sonic rigs we understand the value of sonic drilling. Although sonic drilling can and will deliver superior sample, quality is directly linked to the field crew and its understanding of the technique.

Under German law (Chamber of Trade) we are licensed to train operators and support them to become drillers.

The training is based on field experience but includes classroom sessions as well.

It is a sustainable business practice to support our client getting a project started, achieve the desired results, train field crew, hand over the operation and assist in making it grow. This keeps us in touch with the client and the operation. It provides the foundation to develop tools and concepts to get ever better at the game...

headquarters
Soundcore Germany:
Herzbergstr. 122-123, 10365 Berlin

ceo: Paul Eisenkolb

Amtsgericht Charlottenburg
HRB 128547 B
UmSt-Ident Nr: DE272835488

www.soundcoredrilling.com



>>THE SKILL IS SIMPLICITY!



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