

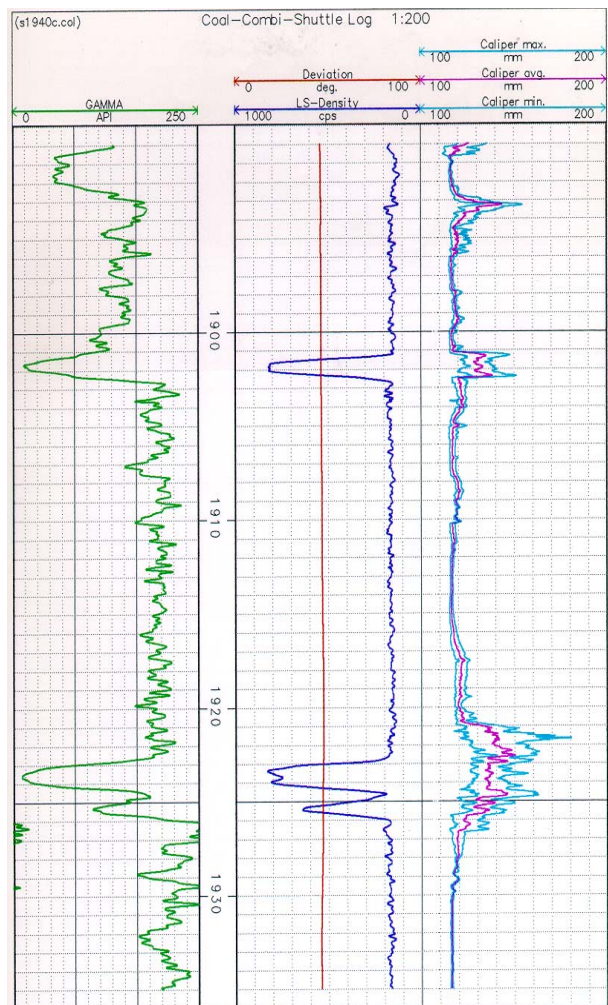
HQ-Coal-Combi Shuttle

DMT downhole tool

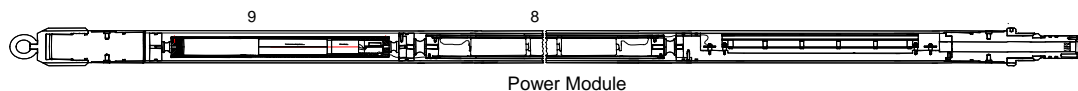
The self-contained cable less logging sonde is equipped with

- 12 channel ultrasonic transducer head
- Three axis accelerometer
- Gamma-Gamma-Density sensors
- Large semiconductor memory

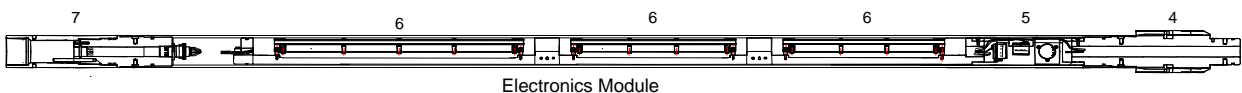
It is guided to the bottom of the borehole through the drill string of a diamond core drill, using the inner core barrel as a carrier. When this assembly of sonde and inner core barrel, called HQ-Coal-Combi Shuttle, is pumped down, it positions itself in the outer core barrel. The sensor of the sonde protrudes the coring bit. By pulling the drill string out of hole the logging interval is covered. The HQ-Coal-Combi Shuttle detects uphole movement and collects and stores the data downhole with precise time information. A Drill String Recorder measures the length on the rig and stores this depth related information also with a precise time information. After the HQ-Coal-Combi Shuttle is pulled out of the remaining drill string by means of an overshoot device or cable. Then the information data is read out of the sonde and is merged with the depth information from the Drill String Recorder.



Log from HQ-Coal-Combi Shuttle



Power Module



Electronics Module



Sensor Module

- | | |
|------------------------------|--------------------------|
| 1 radioactive source | 5 inertial sensors |
| 2 ultrasonic dip-sensor | 6 electronics and memory |
| 3 density detector | 7 sonde joint |
| 4 core catcher shell-adapter | 8 energy pack |
| | 9 natural gamma sensor |

Advantages of Borehole Shuttle Logging

- Trip time is used to take measurements in a cost effective manner
- Sonde mobility is possible for all borehole deflection angles, and is also safe in non stable borehole sections
- There is no risk of loosing a sonde, because it remains completely within the drill string
- Mud flushing and rotation of the drill string is possible every time
- Logging interrupts the drilling progress only slightly. It can be done efficiently during each roundtrip, checktrip, or after the core run
- The tensile strength of the drill string, compared to a logging cable, is excellent to operate high resolution dip measurements

Technical Data

Length mounted	5.34 m
Length of protruding sensor part	0.95 mm
Tool diameter	63 mm
Weight	61 kg
Maximum recording time	10 hours
Maximum pressure	200 bar
Maximum temperature	70° Celcius
Logging interval	1200 m
Logging speed recommended	3 m/min
Inner core barrel	HQ
	CHD 101
	SK 1/4
	(further adaptations are possible)
Parameters logged	Layer thickness
	Layer structure
	Density
	Dip
	Joints

Subject to change

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