semm logging
WELL LOGGING SERVICES

TECHNICAL SHEET

XY CALIPER	4 ARMS	4B

Generalities

Principle
Opening and closing of the motor-driver caliper arm is by surface command, allowing the probe to run into the borehole with the arms retracted. Once opened, the spring-loaded arms respond to borehole diameter variations as the probe is raised up the borehole.

Results
The XY caliper takes continuous measurements of borehole diameter from four independent arms. The soft provides average for two arms in two axes. The verticality section includes a triaxial magnetometer and three accelerometers.

Interest
Determination of borehole conditions, check of drilling diameter, identification of caving or broken area, casing's state (concretions, perforations), cement volume calculation (hole or annular volume) etc…

Options
Natural gamma sensor, Trajectometry (no steel casing for azimuth).

Constraints / borehole

filling up	:	☒ water	☒ mud	☒ dry
casing	:	☒ PVC	☒ steel	☒ open
borehole	:	☒ cored	☒ destructive	
max. depth	:	2000 m		
effective diam.	:	50 mm – 400 mm		
temperature	:	0 °C – 75 °C		
max. pressure	:	200 bars		

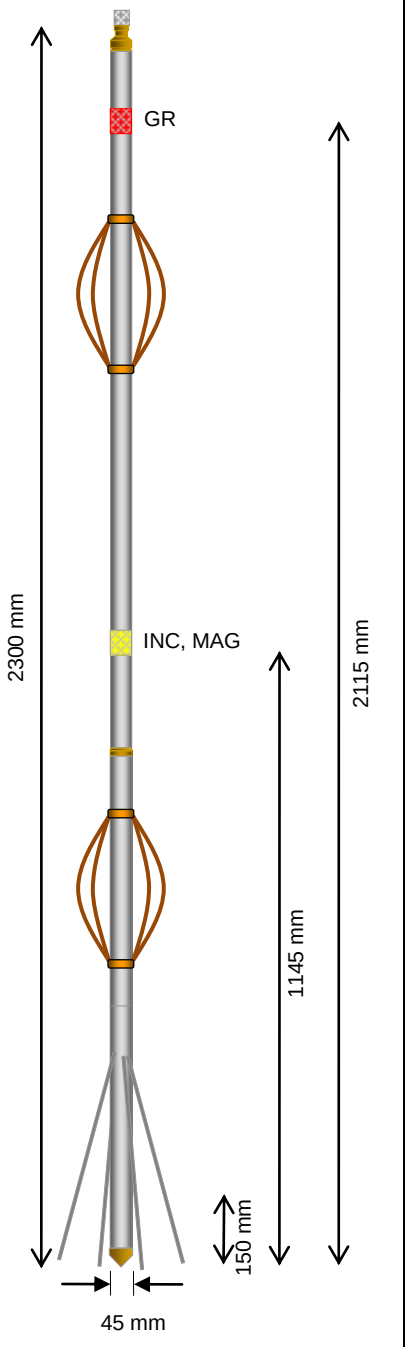
Technical specifications

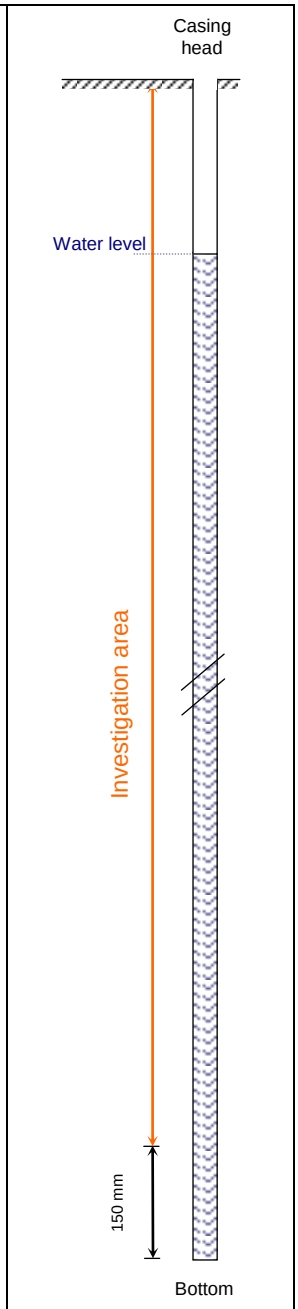
Dimensions

- length : 2300 mm
- diameter : 45 mm
- weight : 8.0 Kg (18 lbs)

Elements

- 4 arms (average of 2 arms) : $_{av}[B_1,B'_1]\ _{av}[B_2,B'_2]$
- 1 magnetometer 3 axis (x,y,z) : MAG
- 1 accelerometer 2 axis : ACC
- 1 natural gamma sensor : GR





Records / Measures

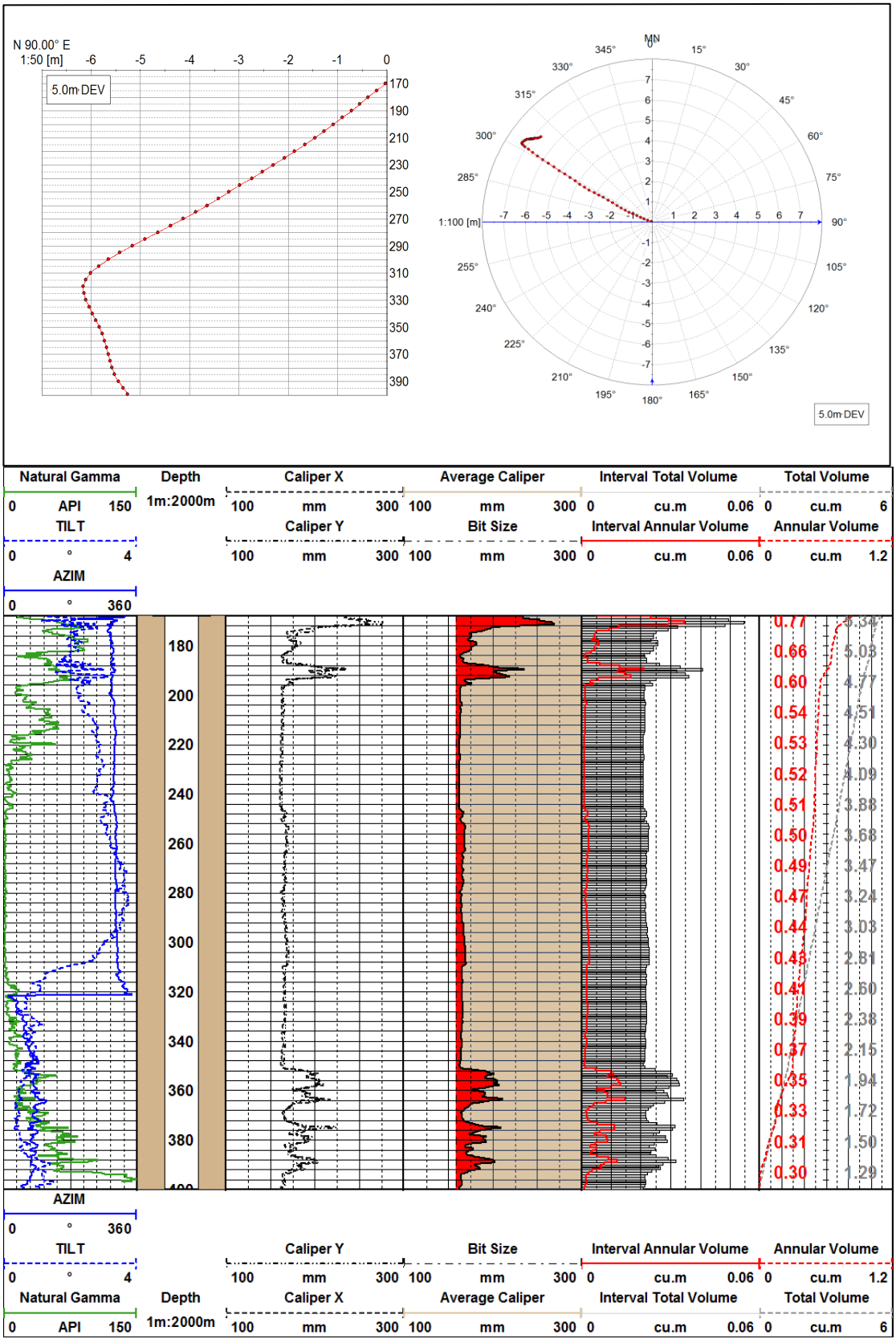
Records

• Tool	:	☒ centered	☐ off-centered
• Measure	:	☐ down	☒ up
• Rec. speed	:	5 m/min	

Measures

- Range (diameter) : 45 mm à 400 mm
- Accuracy : ± 0.5 mm
- Range (orientation) : 0°-360° (azimuth) ; 0°-90° (tilt)
- Accuracy : ± 1.2° (azimuth) ; ± 0.4° (tilt)

Example


N 90.00° E
1:50 [m]
5.0m DEV
MN
1:100 [m]
5.0m DEV
Natural Gamma
Depth
Caliper X
Average Caliper
Interval Total Volume
Total Volume
0 API 150
1m:2000m
100 mm 300
100 mm 300
0 cu.m 0.06
0 cu.m 6
TILT
Caliper Y
Bit Size
Interval Annular Volume
Annular Volume
0 ° 4
100 mm 300
100 mm 300
0 cu.m 0.06
0 cu.m 1.2
AZIM
0 ° 360