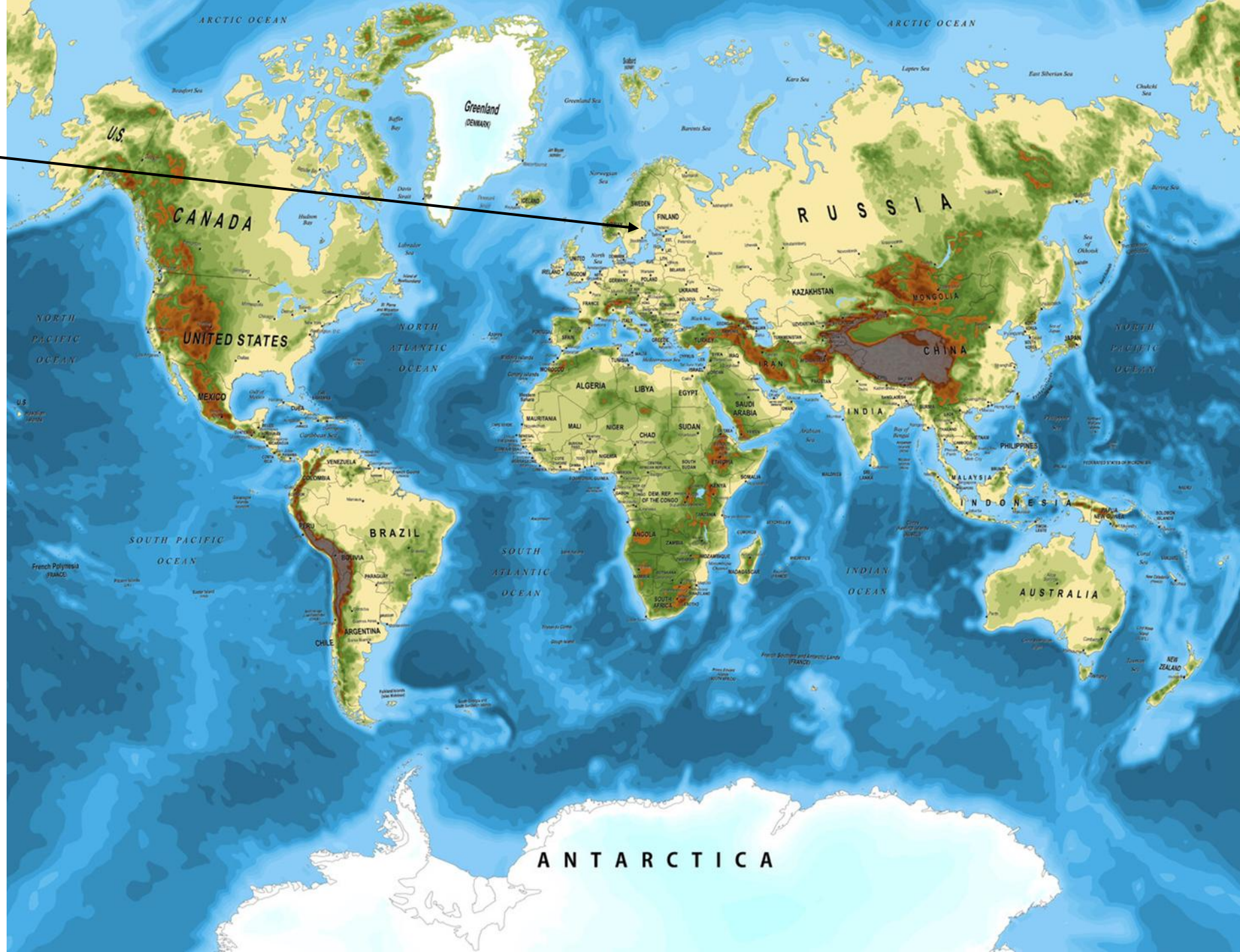


**ROTOSONIC
GROUP**

**-YOUR PARTNER
IN THE FIELD**

**SPECIALIST IN
SOIL SAMPLING
WITH
SONIC DRILLING**



ABOUT US

- Rotsonic Group was founded in 2015 by Andreas Löfström
- Rotosonic Group consists of Miljöanalys Scandinavia AB & Rotosonic Drilling Scandinavia AB
- Head office is located in the heart of Dalarna, Falun. 200 km North West of Stockholm
- Carry out projects all over Europe

INNOVATIVE COMPANY

- Rotosonic Group AB – Is the innovative, creative and flexible company
- We want to be perceived as the industry's most reliable, flexible and responsive company
- We are the first choice for our clients
- With a range from 20-55 tons sonic rigs we are able to take on all kinds of challenging projects



OUR SPECIALTY IS TAILINGS, WASTE FACILITIES & LARGE DAMS

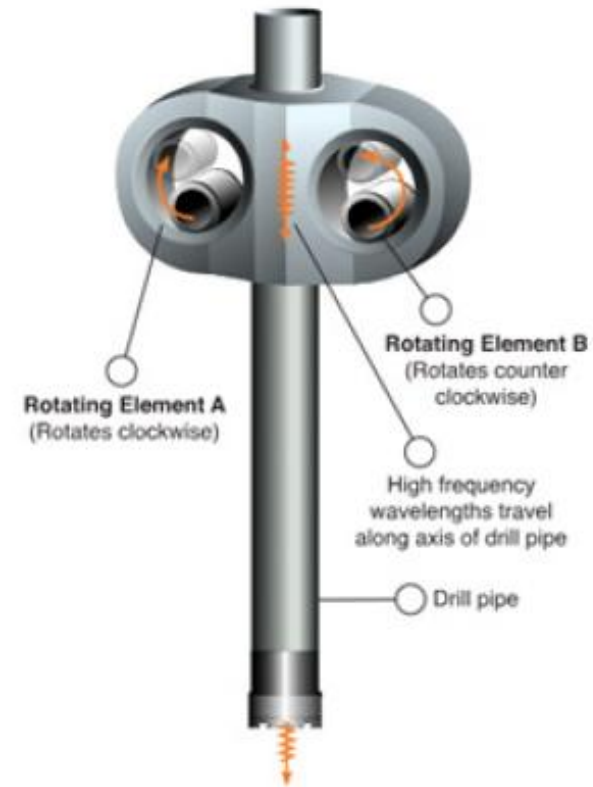
- Rotosonic Group carries out sonic-drilling in tailings, waste facilities & large dams (power plants) all year round to the world leaders mining companies and hydro power companies



WHAT IS ROTOSONIC DRILLING?

- Developed in North America about 40 years ago
- Got real success in Europe in the early 2000
- Utilizes resonant energy from a drill head with two synchronized eccentrics, rotating oppositely up to 9,000 RPM
- High frequency vibrations 0-150 Hz are transmitted to the drill string. It makes it possible to drill even in challenging conditions
- Driller can adjust resonant frequencies to match the geological formation for optimal drilling productivity
- Undisturbed sampling (No cross-contamination)

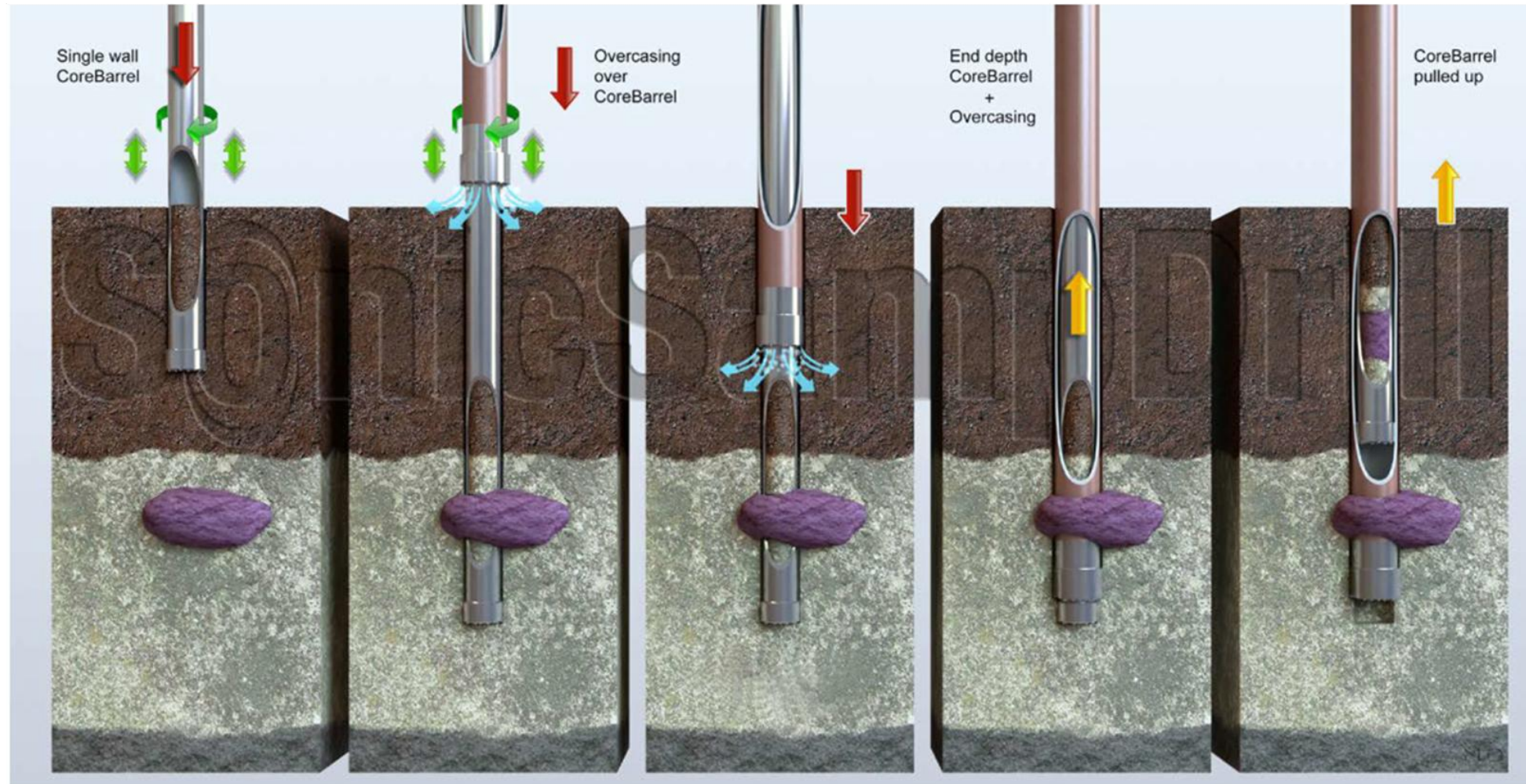
Sonic Oscillator Diagram



HOW DOES IT WORKS?

- Uses high-frequency vibrations to penetrate soil and rock
- Reduces friction between drill bit and material
- Provides faster and cleaner drilling
- The sonic make it easier to assess soil layer
- Vibratory drilling machine generates frequencies up to 150 Hz
- The energy is transferred to the drill bit
- The material in front of the drill bit is loosened or fluidized

HOW DOES IT WORKS?



SAMPLES FROM A HYDRO POWER DAM IN NORTH SWEDEN



SAMPLES CAN BE CAPTURED DIRECTLY IN A BAG



BEDROCK



BLOCK



ADVANTAGES

- High sample quality
- Undisturbed cores
- Works in difficult formations
- Minimal water/drilling mud
- Straighter holes, deviation less than 0,5%



DISADVANTAGES

- Higher cost due to high investment costs
- Less effective in hard bedrock
- Risk of heat generation that can affect samples
- High mobilisation cost



APPLICATIONS

- Environmental Investigations
- Geotechnical Investigations
- Groundwater Installations
- Mineral Exploration
- Infrastructure and Construction Projects



WHERE TO BE USED

- Where samples of high quality are required
- Residual products from the mining industry
- Old mines
- Tailings deposits
- Finding leakage in tailings/dams
- In sensitive areas where minimal impact on the surrounding environment is important



OUR MACHINES

CAT 340-8XXL



TSI 150AC8



TECHNICAL SPECIFICATIONS GM XXL340-8

- Output force 222kN
- Frequency 0-150 Hz
- Rotation speed 0-80 rpm
- Horsepower (Hp) 352
- Reach 9 m
- Dimensions to drill 50-280 mm CAT 340-8,
50-311mm AC8



TECHNICAL SPECIFIKATIONS TSI AC8

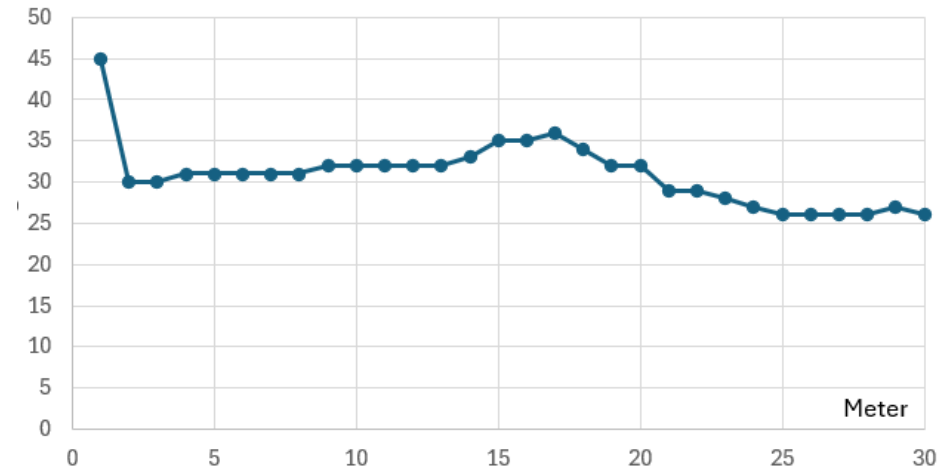
- Output force 222kN
- Frequency 0-150 Hz
- Rotation speed 0-62 rpm
- Horse power (Hp245)
- Dimensions to drill 50-302 mm



REGISTRATION SYSTEM

- Vibration (Hz)
- Pressure (mPa)
- X/Y on the mast
- RPM
- Water flow (l/min)
- Sinking speed
- Depth

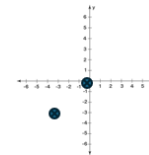
Vibration Hz



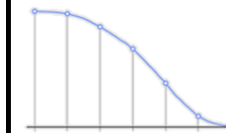
Frequency – 96 HZ



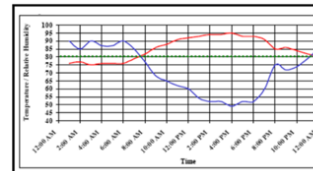
Tilt X / Y – 25 / 1



Water flow – 6 L/min



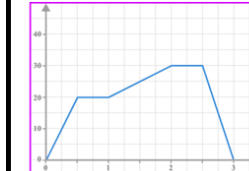
Temp / RH – +25C / 40%



Drill RPM - 29



Distance – 8m



TOOLING – CORE BARREL

Core Barrel Bit Dimensions

Inner Diameter (Core Size)			Outer Diameter	
Size*	Metric	U.S.	Metric	U.S.
3.75 in (95.25 mm)	76.4 mm	3.01 in	98.86 mm	3.89 in
4.5 in (114.3 mm)	90.17 mm	3.55 in	116.33 mm	4.58 in
4.75 in (120.65 mm)	97.87 mm	3.85 in	124.77 mm	4.91 in
6 in (152.4 mm)	125.48 mm	4.94 in	154.94 mm	6.1 in
7 in (177.8 mm)	152.15 mm	5.99 in	181.15 mm	7.13 in
8 in (203.2 mm)	177.19 mm	6.98 in	208 mm	8.19 in
9 in (228.6 mm)	213 mm	8.39 in	238.79 mm	9.4 in
10.5 in (266.7 mm)	240.03 mm	9.45 in	271.02 mm	10.67 in

TOOLING - CASING

Casing Shoe dimensions

Inner Diameter			Outer Diameter	
Size*	Metric	U.S.	Metric	U.S.
4.75 in (120.65 mm)	99.77 mm	3.93 in	124.38 mm	4.9 in
6 in (152.4 mm)	126.75 mm	4.99 in	156.64 mm	6.17 in
7 in (177.8 mm)	158.19 mm	6.23 in	183.69 mm	7.23 in
8 in (203.2 mm)	184.86 mm	7.28 in	210.87 mm	8.3 in
9.25 in (234.95 mm)	213.31 mm	8.4 in	240.08 mm	9.45 in
10.5 in (266.7 mm)	245.06 mm	9.65 in	273.1 mm	10.75 in
12 in (304.8 mm)	276.17 mm	10.87 in	311.2 mm	12.25 in

SAMPLES



PRICES



Machines	Best used for	Drilling rate per hour (*) (**)	Sampling performance per day (*)	Drilling performance per day (*)	Drilling performance per hour (day shift of 10 hours) (*)	Drilling rate per m (*) 4m sampling per hour, 8m with casing
Caterpillar 340-8, 55tons	Sampling, in slope & angle holes	€	40.0m	80.0m	8.0m	
TSI 150-AC8 20ton	Sampling & Angle holes	€				€

(*) Rates are average, approximate, rough, and indicative for normal site and contract conditions, and subject to changes as per original conditions of each order.

(**) Conditions of accommodation, allowances, transportation, mobilization, etc., are calculated in terms of internationally-accepted norms, and agreed by our customers per specific locations and conditions of each specific order.

MEMBER OF SWEDCOLD



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