

VIBSIST-3000 CODED-Impact Seismic Source

Oikiluoto, Finland
3D seismics



APPLICATIONS

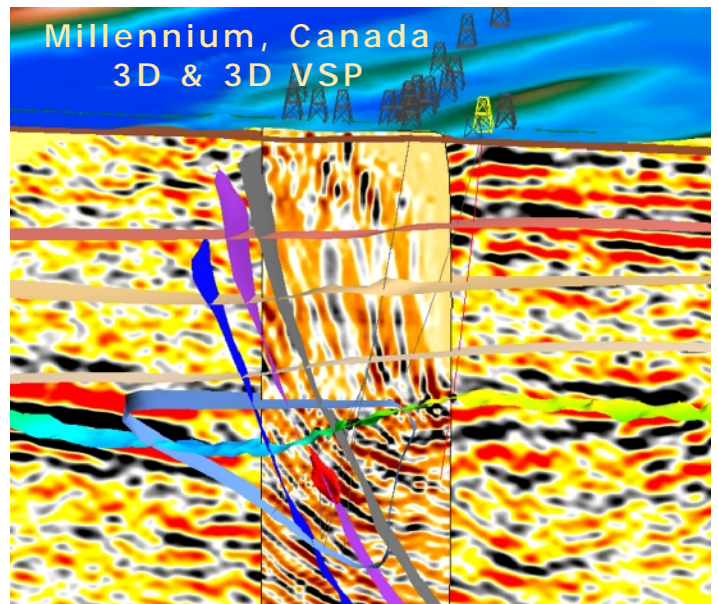
Surface 2D & 3D and VSP for

- Oil exploration
- Reservoir characterization
- Mining of strategic minerals
- Geothermal energy
- Geologic storage

KEY FEATURES

- ♦ All terrain reflection seismic source
- ♦ Simultaneous multiple-source capability
- ♦ High productivity
- ♦ High resolution
- ♦ Rugged and mobile
- ♦ Minimum environmental impact
- ♦ Compatible with all industry-standard seismographs

Millennium, Canada
3D & 3D VSP



The VIBSIST-3000 is a multi-impact, time-distributed seismic source that uses a hydraulic hammer mounted on 4-wheel drive / 4-wheel steering all-terrain, highly- maneuverable vehicle. It has a low outside turning radius (3.7 m).

This is a safe, non-destructive and environmentally friendly high-resolution seismic source. It is specially designed for use in forest areas, so that cutting trees can be avoided.

The VIBSIST-3000 source can probe 7—8 km deep in hard rocks and 3—4 km deep in sedimentary rocks.



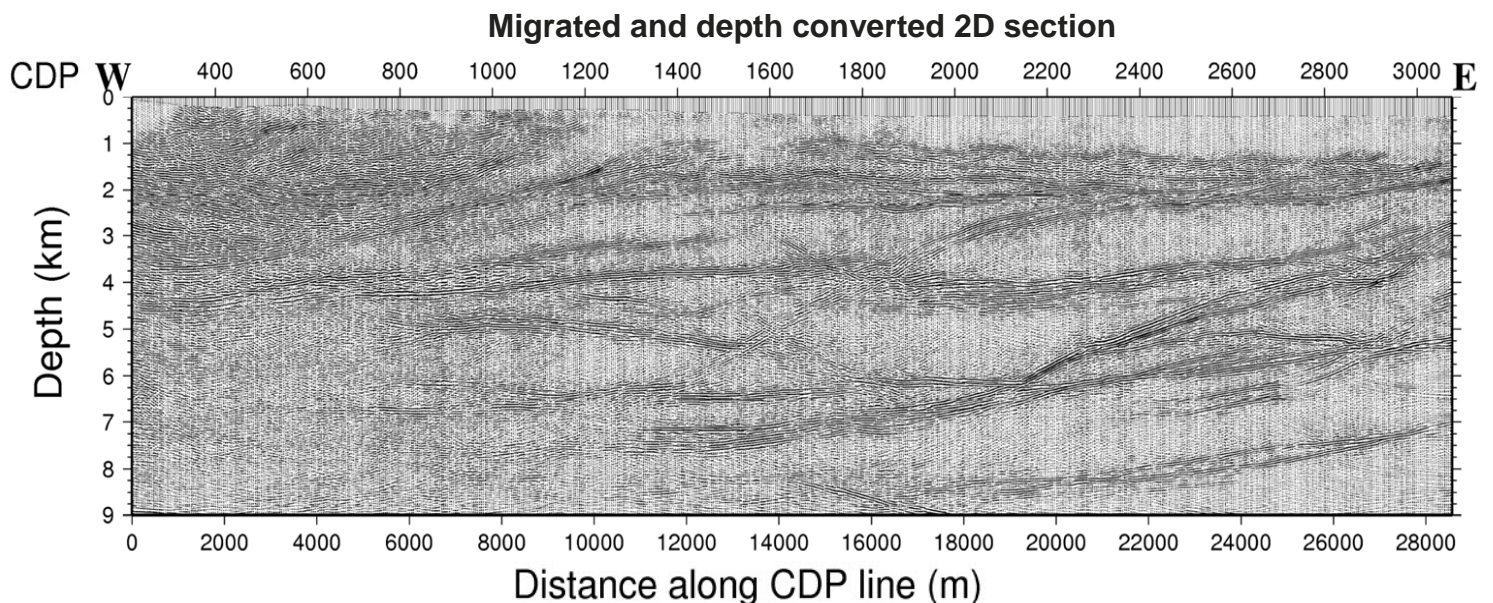
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All terrain Seismic Source



The hammer is powered through a computer controlled hydraulic regulator and produces series of impacts, delivered according to pre-programmed time functions. The recommended temperature range for operation is -30° to 50°C .



Courtesy of Peter Hedin, UU, EGU 2011.

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SYSTEM MODULES

The Ground impact assembly is built as a sandwich of aluminum, steel and rubber plates and bells that can be customized for several specific ground conditions.

The Hydraulic impact hammer operates in accordance with the sweep control sequence, produced by a hydraulic servo-controller.

The Hydraulic servo-controller transfers to the hydraulic hammer a coded sequence provided by a sweep control processor.

The sweep control processor monitors the hydraulic pressure, flow and temperature and thereof regulates the impact energy and timing.

The seismic response recorded by the control processor on the Carrier vehicle is conveyed to the recording station by a coded radio signal. A variety of seismographs can be used, which include all industry-standard recording systems.

SOFTWARE

- **Control Software** used to program and operate the sweep control sequence
- **Sweep Decoder**; correlates the sweeps. This module can either be used for fast on-line monitoring or elaborate off Line processing
- **Signal Conditioning**, includes a collection of filters used for processing of the records before and/or after correlation
- **Signal Display Interface** allows the operator to visualize the data conveniently and flexibly.

SPECIFICATIONS

Impact energy: 3000 J / impact
Energy/30s sweep: 900 kJ
Peak force: 336 kN
(75000 lbf)

Frequency band: approximately
2 to 300 Hz

Repetition rate: programmable between
6 and 12 impacts per second

Programmed sweep characteristics:
operator designed (graphic interface)
or preset

Controller

Reads impact sequence from accelerometer placed on hammer, data on oil flow and pressure;

Adjusts and re-adjusts the flow and pressure, to obtain the pre-set value of energy at the pre-set timing

Data transmission

Radio / Cable link for trigger and pilot signal.

Impact Hammer

Hydraulic with gas accumulator
Vertical direction, adjustable stroke

Impact Plate Steel and aluminum
Area 1m²

Hydraulic Valve System

Online, automatic & proportional control of flow on both input & return lines

Hydraulic Controller

Working pressure 130 bar
Max oil flow 140 l / min

Total weight 7500kg

Dimensions 5000x2250x2500 mm (LxWxH)

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE



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VIBSIST-3000 Seismic Source



The VIBSIST-3000 uses heavy-duty carrier vehicles and hammers. This makes it safe, reliable and cost effective in difficult terrain as well as in environment sensitive areas, such as forests, rural areas and cities.



The VIBSIST-3000 produces wide-band seismic signals even when coupling to the ground is relatively poor.

It is best suited for operation in noisy environments.



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