

VIBSIST-3000

SWEPT IMPACT SOURCE FOR DEEP RANGE SURFACE HIGH-RESOLUTION SEISMICS



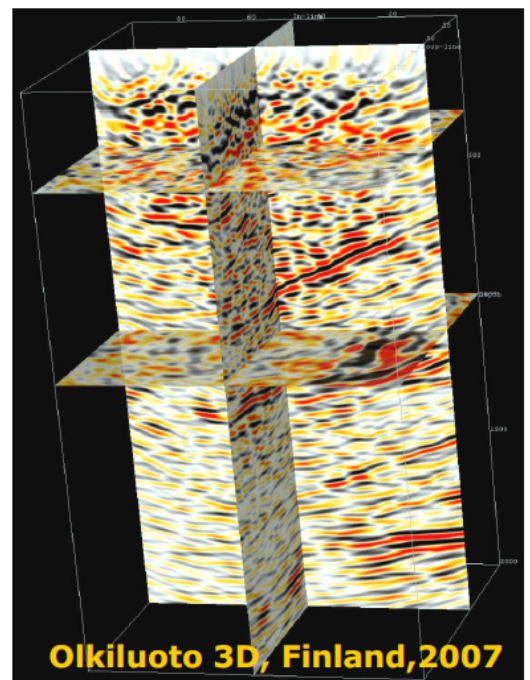
Major benefits

- Effective reflection seismic source
- Produces focused beams of compression waves
- High productivity
- High resolution
- Rugged and mobile
- Environmentally friendly
- Mechanically reliable
- Compatible with most seismographs

Applications

- Multi-offset, multi-azimuth VSP
- 2D & 3D surface reflection and refraction
- Oil and Gas exploration
- Carbon Capture and Storage
- Mineral exploration
- Hydrogeological studies

The VIBSIST is a **multi-impact, time distributed seismic source** that uses a hydraulic impact hammer mounted on 4 wheel drive / 4 wheel steering industrial vehicle. The vehicle has and high maneuverability, with a tight turn radius of 3.7m, can move at 40 km/h on public roads and climb slopes of 30°.

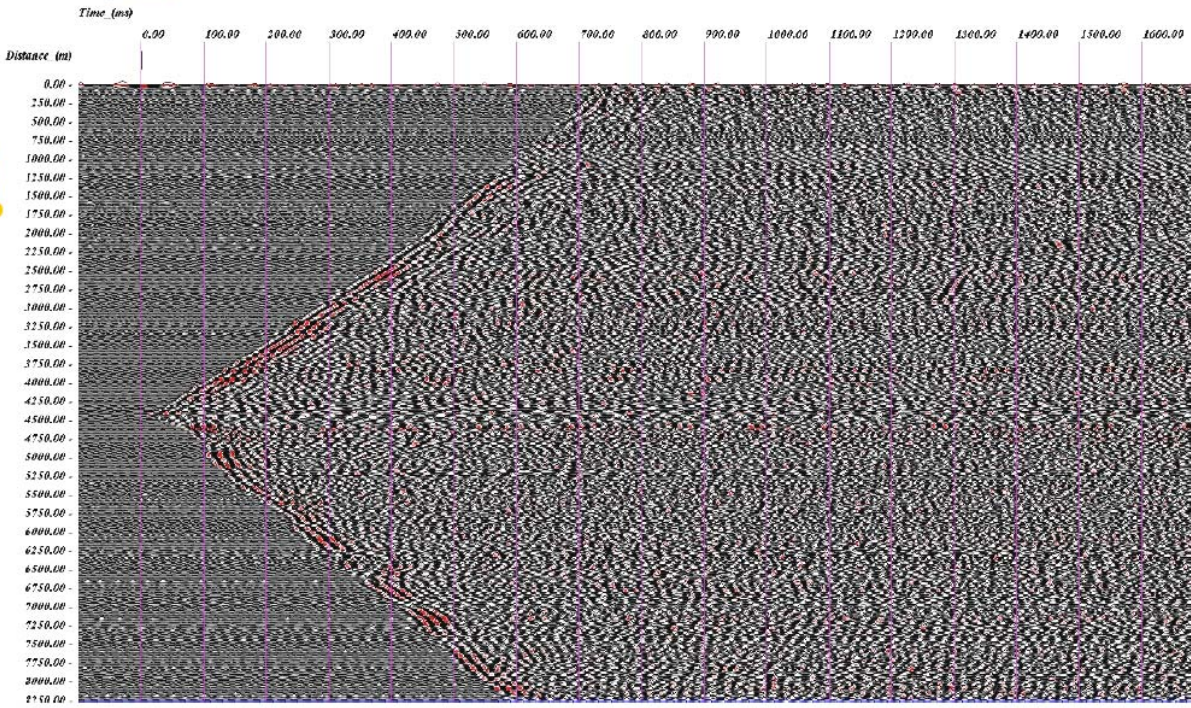


The hammer is powered through a computer controlled hydraulic regulator and produces series of impacts, delivered according to pre-programmed sequences. Temperature range for operation is, normally -20° to 65°C.

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- ◆ Ketzin, Germany, September 2009;
- ◆ CO2SINK project



Raw shot gather along a 2D reflection line shot in August 2009 in Northern Sweden. Typical production rate was 150—175 shots per day, at 25 m intervals.

SYSTEM COMPONENTS

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 computer.

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

The seismic response recorded by the control computer on the **Carrier vehicle** is conveyed to the recording station by a coded radio signal.

The VIBSIST-3000 is compatible with most seismographs

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 online 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.

The VIBSIST-3000 is a safe, nondestructive and environmentally friendly high-resolution seismic source. The impact sequences produce wide-band seismic signals even when coupling to the ground is relatively poor.

The VIBSIST-3000 uses widely available carrier vehicles and hammers. This makes it versatile, reliable and cost effective.

SYSTEM COMPONENTS

SPECIFICATIONS

- **Impact energy:** maximum 3000 J / impact
(optional lower energy, 8 steps)
- **Maximum theoretical peak force:** 700 kN
- **Impact frequency band:** approximately 5 to 250 Hz
- **Repetition rate:** programmable between 1 and 12 impacts per second
- **Programmed sweep characteristics:** operator designed (graphic interface) or preset
- **Sweep time adjustment:** 2.5s to desired
- **Controller**
 - o Reads impact sequence from accelerometer placed on hammer, data on oil (flow, pressure & temperature)
 - o Adjusts and re-adjusts, after each impact, the flow and pressure, to obtain the preset value of energy at the pre-set timing
 - o Integrated communications—short (Bluetooth) & long distance
- **Data transmission**
 - o Radio / Cable link for trigger, pilot signal, audio and remote control
- **Impact Hammer**
 - o Hydraulic with gas accumulator Vertical direction, double stroke
- **Impact Plate:** Steel and aluminum
Area 1m²
- **Hydraulic Valve System**
 - o Online, automatic & proportional controls of flow on both input & return lines
- **Hydraulic Controller**
 - o Working pressure 130 bar
 - o Back pressure 10 bar
 - o Maximum oil flow 140 l / min
- **Total weight:** 7500 kg
- **Dimensions :** 5000 x 2250 x 2500 mm (L x W x H)