

VIBSIST-200 CODED-Impact Seismic Source



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

The VIBSIST-200 is multi-impact, time-distributed seismic sources intended for detailed seismic surveys in remote and environmentally sensitive areas or from tunnels and mine galleries.

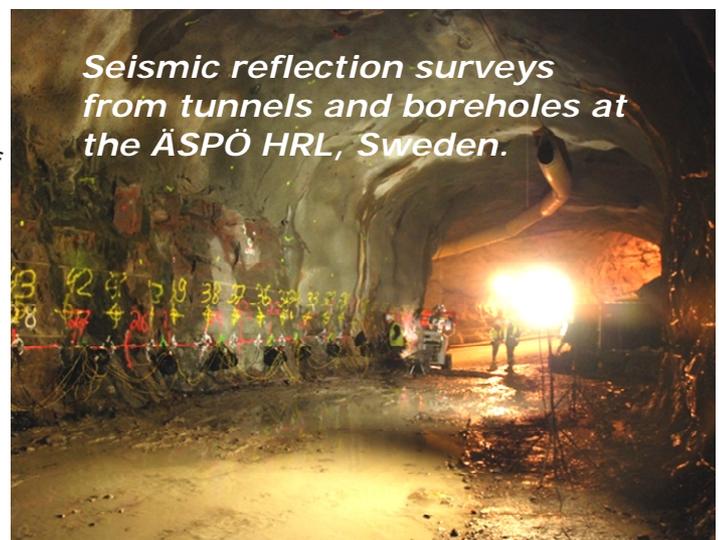
The light 200 J/impact model provides high-maneuverability and mobility in urban, industrial and mining environments.

The seismic signals are generated by a hydraulic hammer mounted on a miniature tracked vehicle, which produces a rapid sequence of impacts according to a pre-programmed time function.

APPLICATIONS

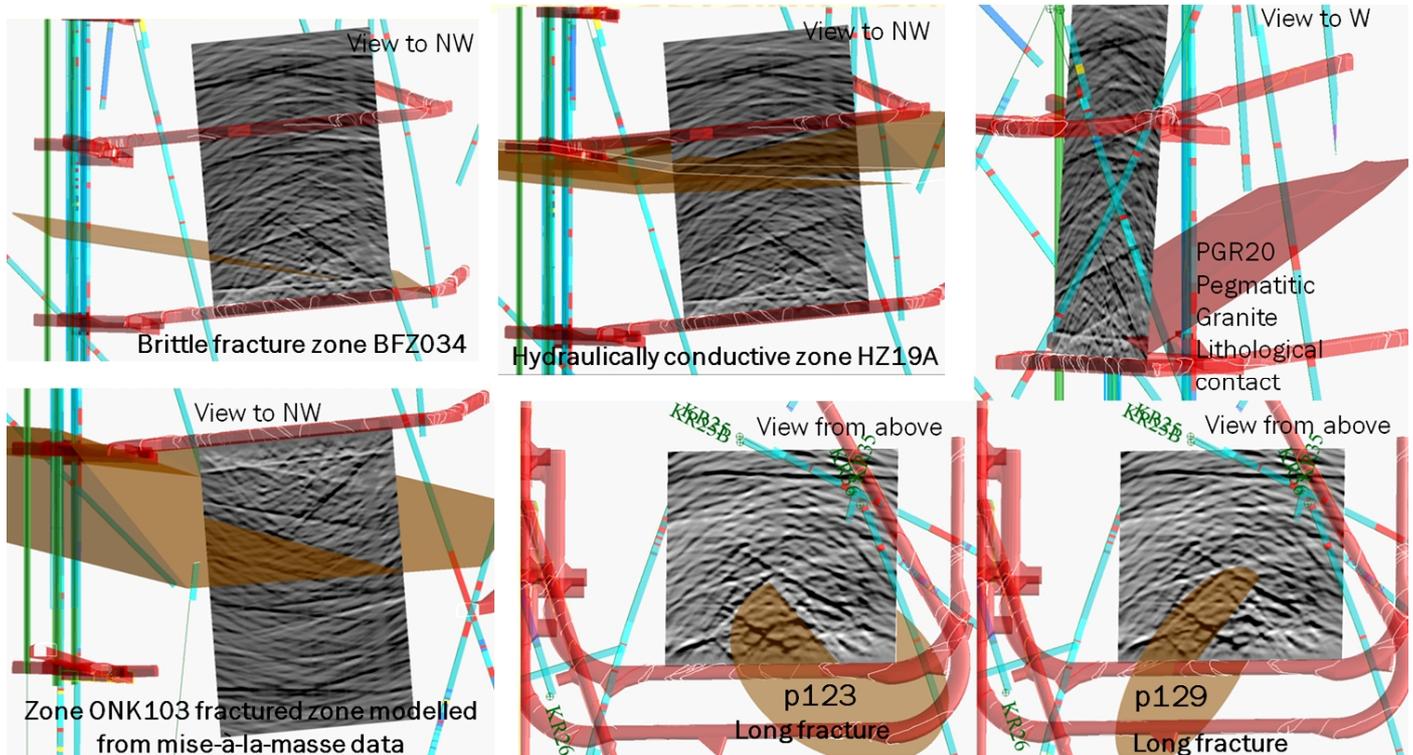
The VIBSIST-200 is intended for detailed surface, borehole and underground surveys with a typical penetration range of 300 to 500m, in reflection mode.

- ◆ Shallow oil and gas
- ◆ Mineral exploration
- ◆ Mine gallery and tunnel surveys
- ◆ Hydrogeological studies
- ◆ Geologic waste storage
- ◆ Geothermal energy



All terrain Seismic Sources

SEISMIC CHARACTERISATION OF HARDROCK AROUND ONKALO TUNNEL AT THE OLKILUOTO SITE IN FINLAND



Known brittle fracture zones, lithological contacts, hydraulically conductive zones, electrically conductive zones (according to mise-à-la-masse surveys) and long fractures could be confirmed by seismic data acquired from Onkalo tunnel.

The VIBSIST-200 source achieve equivalent or better data quality than would drop-weights, especially in noisy environments.

The improvement is obtained by accumulating higher impact energy over a period of time. A signal energy of 40 kJ is produced over a period of 25 seconds at an average rate of 8 impacts per second.

The build-up of individually low energy impacts leads to significant depth penetration while conserving the high frequency component and leading to higher resolution surveys.

All types of noise – cultural, natural, and instrumental – are canceled by the swept impact technique.

The data quality is also increased because the VIBSIST-200 is not dependent on shot-to-shot variations of other impulsive sources.

Compared with frequency swept vibrators, a wider bandwidth is achieved with the VIBSIST-200 even when the coupling to the rock or ground is relatively poor.

SYSTEM MODULES

The **impact assembly** is built as a sandwich of aluminum, steel and rubber plates and bells and several types are available to customize the VIBSIST-200/500 for specific applications and ground or rock conditions.

The **Hydraulic impact hammer** operates in accordance with the coded sequence, produced by the instrument controller.

The seismic response recorded by the controller processor of the source is conveyed to the recording station by a coded radio signal cable or optionally by cable. 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.

The VIBSIST-200/500 can be used all WINDOWS seismographs and a number of UNIX/LINUX seismographs. A dedicated correlator is included with the VIBSIST software.

SPECIFICATIONS

Impact energy:

VIBSIST-200: 200 J / impact

Repetition rate: programmable between 10 20 impacts per second

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

Sweep time adjustment: 2.5 to 30 seconds (possibly limited by the maximum number of samples per channel of the recorder).

Controller

Remote start button for normal operations, Display unit for sweep monitoring and set-up.

Data transmission

Radio / Cable link for trigger, pilot signal.

Impact Hammer

Hydraulic with gas accumulator

Impact Plate

Steel and aluminum sandwich, base plate 500 x 500mm

Hydraulic Controller

Oil Tank 20 l

Pressure 150 bar

Max flow 55 l / min

Total weight 1000 kg

Dimensions L1400 x W800 x H1500 mm

The recommended temperature range for operation is -30° to 50° C.



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



VIBSIST-200 Seismic Source



The VIBSIST-200 is an environmentally friendly seismic source. This a non-destructive alternative that does not create environmental pollution such as chemicals, sound, etc. Legal risks frequently associated with using explosives are eliminated.

The VIBSIST-200 allows jobs to be done faster and in very different conditions.

The VIBSIST-200 source produces wide-band seismic signals even when coupling to the ground or tunnel wall is relatively poor.

