

VIBSIST-250

SWEPT IMPACT SOURCE FOR DEEP RANGE SURFACE HIGH-RESOLUTION SEISMICS



Major benefits

- ◆ Effective reflection and refraction seismic source
- ◆ Produces compression and shear waves
- ◆ High productivity
- ◆ High resolution
- ◆ Rugged and mobile

Additional benefits

- ◆ Environmentally friendly
- ◆ Mechanically reliable
- ◆ Compatible with most seismographs

The VIBSIST is a multi-impact, time-distributed source that uses a dedicated vehicle and hydraulic rock breaker, powered through a computer controlled flow regulator. The vehicle is powered by a Diesel 15/25 Hp motor with electric starter engine, moves at 2 or 4 km/h and can climb slopes of max 30°. Temperature range for operation is, normally -20° to 65°C. A lower temperature option is also available.

Applications

- Multi-offset, multi-azimuth VSP
 - 2D & 3D surface reflection and refraction
1. Mineral exploration
 2. Hydrogeological studies
 3. Hazardous waste investigations
 4. Shallow oil and gas
 5. Research and education

The seismic signals are produced as a series of pulses, according to a specific preprogrammed sequence.

The use of a monotonous variation of the impact rate controls effectively the non repeatability of the impact intervals and achieves a wide bandwidth even when coupling to the ground is relatively poor.

Using standard equipment allows the VIBSIST-250 to be a safe, non-destructive and environmentally friendly high resolution seismic source. It also makes it reliable and highly cost effective.

SYSTEM COMPONENTS

SYSTEM MODULES

1. The **controller** transfers to the impact hammer the sweep control sequence provided by the computer
2. Caterpillar vehicle with combustion engine operating in accordance with the sweep control sequence, through a **hydraulic servo controller**
3. The ground impact assembly includes a pressure plate (may be customized for certain ground conditions).
4. A variety of **seismographs** can be used; they include Geode and StrataVisor Seismic Systems.
5. With non-Windows seismographs, a **laptop** is required but not provided with the VIBSIST-250.

SOFTWARE

Four software modules are included as part of the VIBSIST-250 system, they are:

- **Controller software** used to program 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 filtering programs used for processing of the records before or after correlation
- **Signal Display Interface** allows the operator to visualize the data conveniently and flexibly

SPECIFICATIONS

- Impact energy:** 120—240 J / impact
(optional 300—500 J / impact)
- Impact frequency band:** approximately 20 to 1000 Hz
- Repetition rate:** programmable between 3 to 20 impacts per second
- Programmed sweep characteristics:**
operator designed (graphic interface) or preset
- Sweep time adjustment:** 2.5s to desired (this is restricted by the number of samples available per recording channel in the acquisition system).
- Controller**
Electric remote control (joystick) for normal operations, Manual for emergency
- Data transmission**
Radio / Cable link for trigger, pilot signal, audio and remote control
- Impact Hammer**
Hydraulic with gas accumulator
Vertical or Horizontal direction (may impact on surface or a wall)
- Impact Plate** Steel or aluminum
 Φ 400mm or oval 400 to 800mm
- Hydraulic Controller**
Oil Tank 20 l
Pressure 150 bar
Max flow 55 l / min
- Total weight** 1000—1500kg
- Dimensions** 1400x800x1500 mm (LxWxH)

