



## Marine Vibrator

Safety. Acquisition. Experience.

# Marine Vibrator

## Airgun Alternative Improves Source Control and Reduces Environmental Impact

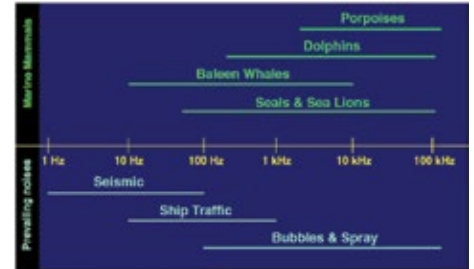


### CHALLENGE:

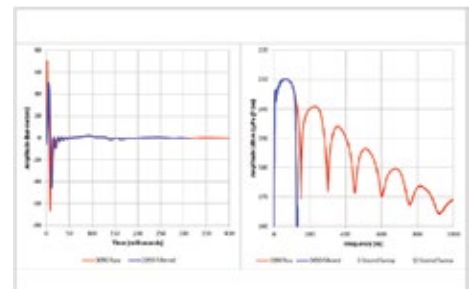
Conventional airguns generate large volumes of high-frequency noise when employed as a marine seismic source, particularly in shallow waters. The environmental impact of subsea noise can be significant— high amplitude impulsive sources can mask animal calls and may cause temporary hearing loss or changes in animal behavior.

### SOLUTION:

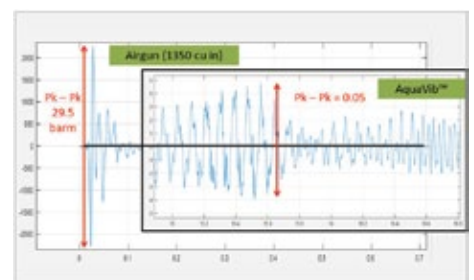
The SAE Marine Vibrator is a towable marine source that generates seismic energy equivalent to airguns, at significantly reduced sound pressure levels, and at frequencies below the hearing range of most marine species.



Traditional impulsive sources generate frequencies that can impact the safety of marine life.



Impulsive sources generate frequencies that are not necessary for marine seismic acquisition.



Marine Vibrator operates at lower pressures than impulsive sources, and creates only the frequencies required for seismic acquisition.

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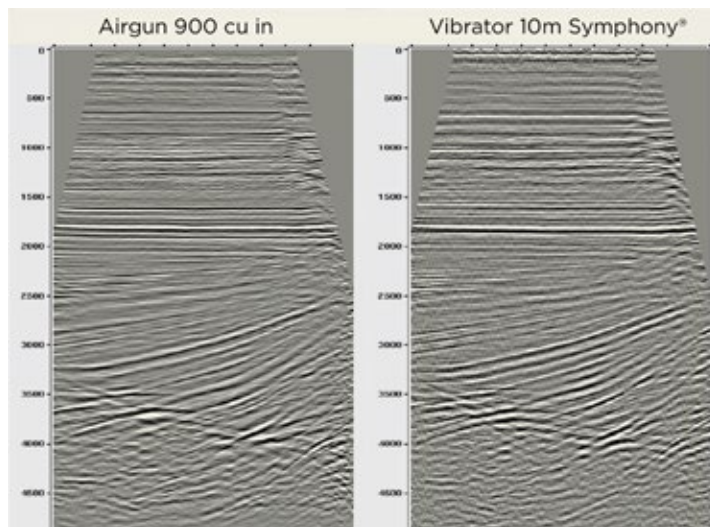
The Marine Vibrator subarray consists of two Triton vibrators and one lower frequency Subtone, each with different response characteristics and resonant frequencies. Advanced controller systems can enable precise acoustic output, while providing real-time feedback to ensure high levels of acoustic quality control. Marine Vibrator is designed for water depths as little as one meter, delivering performance and reliability in challenging transition zones, lakes and shallow water OBN surveys.

- Bandwidth control enables overall lower signal level output
- Multiple-second sweep duration markedly reduces instantaneous sound pressure levels
- Meets updated NOAA guidelines for TTS and PTS

### RESULTS:

Marine Vibrator has been successfully deployed three times, most recently on a 13.5 km 2D test line in the shallow waters off Freeport, Texas in the Gulf of Mexico. Data was acquired in water depths of zero to 60 feet, testing multiple sweep parameters, tow depths and VP intervals, including Geokinetics' proprietary Symphony® sweep. A second line was recorded using a shallow water airgun for data comparison purposes.

The Marine Vibrator has proven itself to be a viable replacement for airguns, delivering a data character virtually identical to airguns while meeting updated NOAA guidelines for impact on marine life.



900 ci Airgun results; Vibrator 10m Symphony results

### Marine Vibrator Technical Specifications

- Subarray Dimensions: 203" L x 103" W x 63" H
- Weight: 14,800 lbs
- Bandwidth: 2-250 H
- Power Requirement: 440 V
- Solid state driver element with no moving parts
- Fully electric system, no hydraulics in the water
- One-piece flextensional shell design



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