

Profound Sonic Integrity Testing (SIT)

SIT-series

General description

A solid base for a building is fundamental. Yet, how do you know for sure that the foundation piles are still intact after installation?

Prefabricated piles could have been broken, and cast-in-place piles might have developed defects, such as neckings and inclusions in the pile shaft.

To avoid unpleasant surprises you can check piles for defects before they become an integral part of the foundation. The most common technique for checking piles is the non-destructive method 'Sonic Integrity Testing' (SIT). It is a quick and inexpensive method to check the integrity of installed foundation piles.



Accurate testing

With each Profound SIT-system you can verify the pile length and detect irregularities and/or cracks in the pile shaft after installation. This applies to prefabricated as well as cast-in-place foundation piles.

To check the integrity of a pile, the pile head is struck with a special hand-held hammer that sends a shock wave down the pile shaft. The reflected signals are measured by a sensitive accelerometer pressed onto the pile top, and these signals provide information about the pile shaft and possible defects. The response of the pile, the so-called reflectogram, is shown on the display of the SIT-system, enabling a direct check of the quality of the measurement.

This reflectogram can also be stored in the system together with other information (such as pile number, date, time, site and amplification factor) to allow further analysis on an office PC.

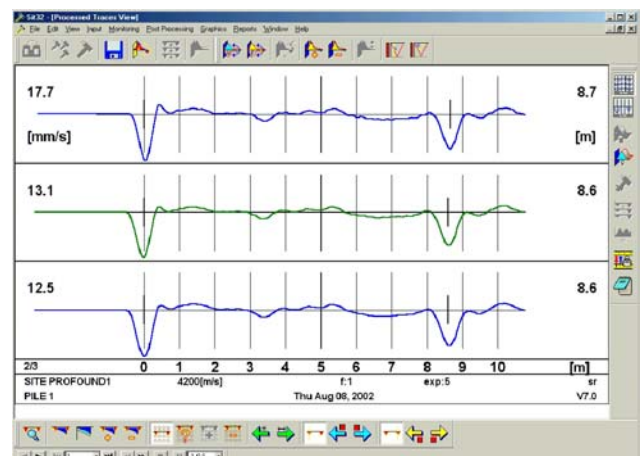
Cost-effective

With a SIT-system you own a compact tool that allows early detection of common pile defects. As a result, you can avoid the potentially considerable expenses associated with structural damage due to defective foundation piles.

Profound SIT-systems

Depending on the measurement intensity and goal, Profound offers you the choice between several SIT-systems to meet your specific measurement needs.

Each SIT-system is equipped with a sensor, cables, a hammer and signal processing electronics. With a SIT-system you also receive an extensive (digital) manual. Additionally, you can follow a training course where the operation of the system and the interpretation of the measurement signals are discussed in more detail.



In the SIT PC software advanced features have been included to further facilitate signal processing and interpretation.

Profound Sonic Integrity Testing (SIT)

- **SIT-basic**

The basic SIT-system consists of a sensor unit that is directly connected to the serial port of your Windows laptop. If you need to perform SIT-tests on a limited scale, this light and modular system is very suitable. It is often used for field checks by controlling engineers.



SIT-basic

- **SIT-heavy duty**

SIT-heavy duty is a light and easily portable SIT-system. It is especially designed for everyday use at the construction site and is delivered in a robust, weather-resistant case, which includes all items required to do the testing.

The SIT-heavy duty has been optimized for high productivity. Operating the system requires minimum preparation time. Consequently, with the SIT-heavy duty you can test more than 60 piles within an hour. The built-in rechargeable battery and the available memory capacity are sufficient for 8 hours of continuous operation.



SIT-heavy duty

- **SIT-professional**

If you require more detailed data on the foundation piles, the SIT-professional provides you with all the essential high-quality information tailored to your specific measurement needs.

SIT-professional consists of a field PC that directly presents three consecutive integrity tests for each pile on the screen. Nearly identical measurements indicate that the measurements have been carried out correctly. All results are automatically stored for use in reports. With this system you can test up to 300 piles a day.



SIT-professional

Important measurement and processing settings, such as frequency sampling rate, can be customized to your specific requirements.

Frequency domain analysis is also available with the instrumented hammer package. With this hammer the force impulse at impact can be measured, providing an additional way to detect pile top defects.



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