

SIT

Sonic Integrity Testing

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.



Checking piles with a SIT-system.

To avoid unpleasant surprises you can check piles on defects before they are incorporated in the final foundation plan. The most common technique to check piles is the non-destructive 'Sonic Integrity Test'. It is a quick and inexpensive method to check the integrity of installed foundation piles.

Accurate testing

With each Profound 'Integrity Testing'-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 to cast-in-place foundation piles.

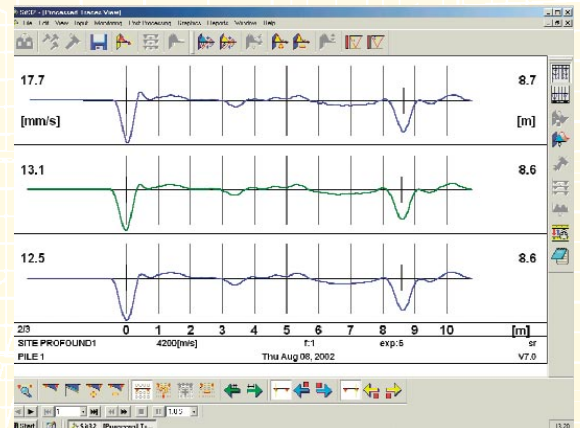
To check the integrity of a pile, the pile head is struck with a special hand-held hammer that sends a shock wave down the pile shaft. The reflected signals are measured by a sensitive accelerometer pressed onto the pile top and provide information about the pile shaft and possible defects. The response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

Next the reflectogram can be stored in the memory of the system together with other information such as pile number, date, time, site and amplification factor. Afterwards the measurement results can be further analysed on an office PC.

Cost-effective

With a SIT-system you own a compact tool to detect common pile defects on time. As a result, you are not put to considerable expenses caused by structural damage due to defective foundation piles.

Profound has been active in soil mechanics, monitoring and foundation engineering for more than 25 years. The reliability of the concept has been proven by the hundreds of SIT-systems in use around the world.



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

Profound SIT-systems

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

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

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• *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 building site and is delivered in a robust, weather-resistant case, which includes all items required to do the testing.



SIT-heavy duty

The *SIT-heavy duty* has been optimised for high productivity. Operating this SIT-system requires minimum preparation time. Consequently, you can test with the *SIT-heavy duty* more than 60 piles within an hour. The built-in rechargeable battery and the available memory capacity are sufficient for measuring a full working day.

• *SIT-professional*

If you require more detailed data about 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.

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



SIT-professional

Frequency domain analysis is also available with the instrumented hammer package. With this hammer the force impulse at impact can be measured as another possibility to detect pile top defects.

Profound support

Profound provides instruction courses and user seminars. Our local agents around the world, who speak your language and understand your specific needs, are also ready to assist you whenever requested.

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