profound

# *SIT*-series

## Pile Integrity Testing

**Sonic Integrity Testing (*SIT*) is a widely used measurement method to check the integrity of concrete foundation piles. This Low Strain Impact Test is a quick non-destructive method to reduce the risk upon failure of cast-in-situ or prefab piles. With a Profound *SIT* system you check the pile shaft for defects or irregularities. Measurements can indicate whether the foundation pile will be capable of passing on the load to the bearing layers.**

### Cost-effective

Pile Integrity Testing is a proven technique to check the integrity of concrete piles in an efficient and cost-effective way before they are incorporated in the final foundation.

The Profound *SIT*-series has been optimised for professional use in the field, as well as for advanced interpretation and efficient management of the pile measurement data. All *SIT* models are robust and easily portable. The efficient operation of the system enables one person to test numerous piles per hour in the field.

### Low Strain Integrity Testing



The measurement is performed by hitting the pile head with a hand-held hammer, instrumented or not, and measuring the response on the head with the sensitive and lightweight *SIT*-accelerometer. The *SIT* presents a measurement signal directly on screen, enabling a direct check of the quality of the measurement in the field.

If approved, measurement signals are stored in the unit with additional information such as pile number, area, date and time stamp, amplification factor and filter setting. Of each pile multiple signals should be acquired for a proper comparison of the signals. For further interpretation the measurements are downloaded via USB to a Windows computer. By comparing the various measurement signals, you can identify possible irregularities in the pile shaft. Depending on the soil condition, it is also possible to acquire an indication of the pile length. The measurement does not provide information on the pile bearing capacity.

### Innovative

Depending on the usage frequency and measurement purpose, Profound offers you the choice of three models to meet your specific measurement needs. The Profound *SIT*-series comprises the *SIT*, *SIT*+ and the top model *SIT*$^{pro}$.

Each *SIT* system is provided with a high-quality accelerometer, hammers, cables, charger and analysis software. Depending on the *SIT* model, you are able to continuously perform tests between 4 up to 8 hours with the integrated high-performance Lithium battery.




The *SIT* model has more than sufficient capacity and functionality to carry out integrity testing for quality control purposes and field checks on foundation piles. The *SIT*+ has been especially designed for frequent everyday use with up to 8 hours battery life and enhanced processing capabilities. The top of the line *SIT*$^{pro}$ is equipped with all first-rate features including expert dedicated analysis software. This entails an integrated database module, GPS and automatic calculation of the group pile average. With the *SIT*-series Profound offers users an innovative system to perform pile integrity testing in an efficient and professional way.



With a *SIT* system you also receive extensive documentation. Additionally, you can follow a training course at the Profound Academy where operation of the system, the theory of Sonic Integrity Testing and interpretation of the measurement signals are discussed.

### Proven technology

The *SIT*-series meets national and international standards such as ASTM D5882-16, EA-Pfähle, AFNOR NF P94-160-2 and NF P94-160-4, CUR-Aanbeveling 109:2013.

Since the early 1960s Sonic Integrity Testing has been performed to reduce the risk upon foundation failure caused by pile damage. Profound, pioneer in the field of professional pile testing research and equipment, has over 50 years worldwide experience. Profound introduces with the *SIT*-series a new generation of measurement equipment for Sonic Integrity Testing. Sonic Integrity Testing has proven to be a professional technique for testing foundation piles. The reliability of the concept is also demonstrated by the hundreds of *SIT*-systems in use around the world.

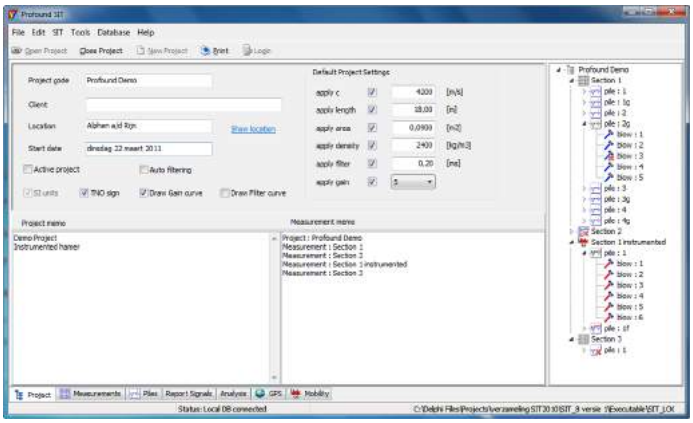
# *SIT*-series

## Specifications ***SIT, SIT⁺, SIT$^{pro}$***

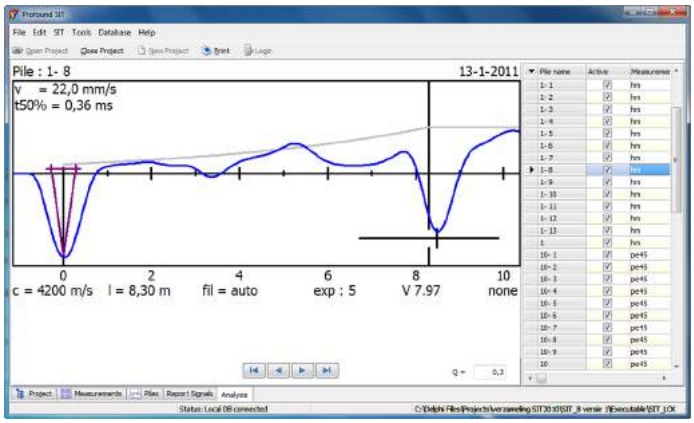




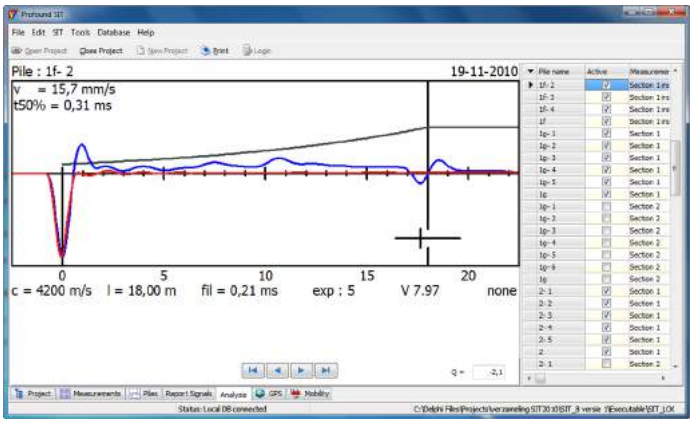
| | | |
|---|---|---|
| Dimensions | : | 248 mm x 164 mm x 38 mm |
| Weight | : | 2.3 kg |
| Housing | : | Robust hard anodized aluminium case |
| Protection rating | : | IP65 rating according to DIN 40 050 / IEC 529 for housing and connectors |
| Display | : | 5.7" TFT – LCD<br>Anti-reflex coating, anti-scratch colour display |
| Battery pack | : | Integrated Lithium battery pack *SIT* 4 hrs of operation<br>*SIT⁺/SIT$^{pro}$* 8 hrs of operation |
| Storage capacity | : | 1 GB |
| AD-converter | : | 24 bits |
| Operating temperature | : | - 20 °C to + 60 °C |
| Project Quality Control | : | Automatic data and time stamps per measurement<br>Site Location/GPS coordinates (*SIT$^{pro}$* only) |
| Accelerometer range | : | ± 500 m/s$^2$ |
| Instrumented hammer | : | *SIT⁺/SIT$^{pro}$* only |
| Extensive technical specifications available at our website | | |



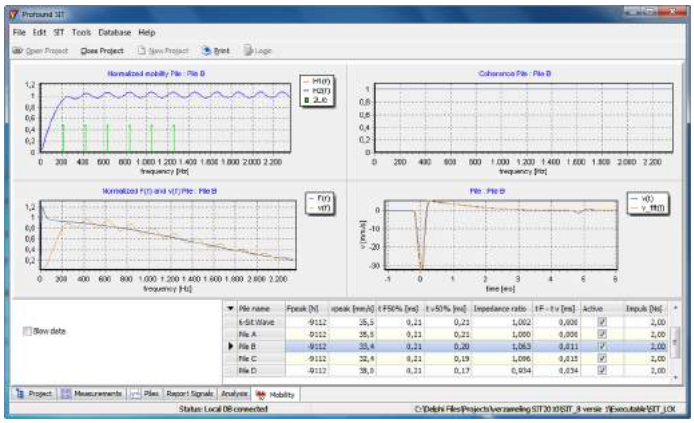
*Project overview*




*SIT signal with filter curve and cross parameter (purple) - Amplification (grey)*




*Force velocity signal with instrumented hammer*



*Mobility graphs*

SIT05/02/2018/UK

**FOR FURTHER INFORMATION**

**Profound BV**
Mozartlaan 46-A
NL-2742 BN Waddinxveen
The Netherlands

Tel. +31 (0)182 640 964
info@profound.nl
**www.profound.nl**

Management System ISO 9001:2015

profound