PILETEST

Take a Deeper Look

CHUM

Cross-Hole Ultrasonic Monitor

Advanced, Friendly, Robust

Product Data Sheet

PILETEST
Take a deeper look

CHUM
Model 3.6

CHUM

The CHUM (Cross Hole Ultrasonic Monitor) uses the Crosshole Sonic Logging (CSL) method (ASTM D6760-08) to perform high-resolution quality control on deep foundations.
The system uses an ultrasonic wave sent from an emitter to a receiver while both are pulled through water-filled access tubes embedded in the concrete. The measured arrival time and energy are directly related to concrete quality.
Additional methods supported by the CHUM are Single Hole Ultrasonic Testing (SHUT) and Tomography (two- and three-dimensional).

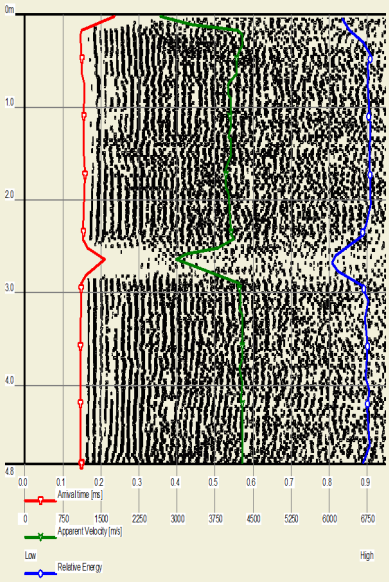
Main features:

- Easy to use; The user-friendly software makes it possible to master the CHUM in less than a day. No additional expensive training required
- Powerful tomography features
- Unlike other system based on an embedded computer (which may soon become obsolete), CHUM connects to the USB port of your regular notebook computer or Tablet PC.

The basic CHUM package includes everything required to perform CSL and 2D tomography:

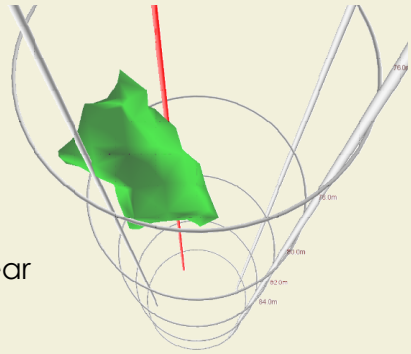
- The CHUM instrument, two ultrasonic transducers, two 50m cable reels, two depth meter pulleys , cables and AC power adapter
- Optional: 100m/150m cable reels, 3D tomography
- Testing, analysis and reporting software
- Interpretation assistance package
- 10 years of free software upgrades
- 3 year warranty on hardware

The **CHUM** system
(computer not included)



Typical output

3D tomography is available as a free on-line service for 1 year



CHUM - Technical Specifications

Physical	**Housing**	Rugged, Environment-proof, water-resistant housing.
	Dimensions	430mmL x 325mmW x 105mmH (instrument only)
	Weight	3.8 kg (instrument only) 5.0 kg (instrument with typical tablet) 16.0kg (Typical shipping)
	Temperature range	Operating : -20°C to 50°C Storage : -40°C to 70°C
Power	**Internal**	Rechargeable Lithium Ion battery 11.1V 4.4Ah (two days of typical use)
	External	100-240V AC operation/charging
Standards	**ASTM D6760 –08**	Meets or exceeds
Technical	**Transducers**	Dual-Purpose transceivers, 50kHz nominal, pressure-tested housing, 25mm diameter
	Cables	Heavy-duty polyurethane wound on reel
	Sample rate	500kHz (2µS resolution)
	Gain	8 level automatic gain control (AGC)
	Depth meters	Two 24-bit counters. <0.1% error
Performance	**Pile lengths**	1m to 145m
	Tube spacing	Up to 5m in good concrete
	Productivity	Up to 3000m/Day by a single operator
	Storage	Unlimited
Requirements	**Computer** (Minimum)	Windows XP/Win7/WIn8/Win10. 800x600 resolution
Output	**Reporting**	Arrival time, energy and wave speed curves, "waterfall" presentation, fuzzy-logic and 3D tomography
	Language	Multi-lingual user-interface and reporting
Options	**Cable reels**	50m, 100m, 150m and custom lengths
	Software	Three-dimensional tomography (Also provided as a service over e-mail)
	Miscellaneous	12V DC car battery power adapter

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CHUM - Ordering information

	Part number	Description	Comments
Parts	**CH100**	CHUM Main unit and charger	(Not sold separately)
	CH200/ nnn	Dual purpose single transceiver with 50m, 100m or custom length reel	E.g. CH200/050
	CH410	Depth Encoder	Depth meter wheel that connects with CH350/ CH360 to CH100
	CH350	Depth cable (I)	A cable connecting a single CH410 to CH100 for CSL
	CH360	Depth cable (Y)	A cable connecting two CH410 to CH100 for to-mography and CSL
	CH510	CHUM car charger/power sup-ply	Not included in packages
	CH500	CHUM 3DT software	3 Dimensional Tomography software enabling vis-ual analysis of test results
	CH601	Extra warranty	Yearly extended warranty beyond the provided 3 years
Packages	**CH001**	Complete CHUM 50m package	CHUM main unit (CH100) 2 X Transceivers with 50m reels (CH200/050) CHUM software 3DT viewer software 2 X Depth meters (CH410) 2 X Depth cables for CSL and tomography (CH350,CH360) On-line Training 3 years Limited Warranty **Note** - Computer is not included
	CH001+ CH002	Complete CHUM 100m pack-age	Same as CH001 but with 2 X CH200/100 instead of 2 X CH200/050
	CH001+ CH003	Complete CHUM 150m pack-age	Same as CH001 but with 2 X CH200/150 instead of 2 X CH200/500

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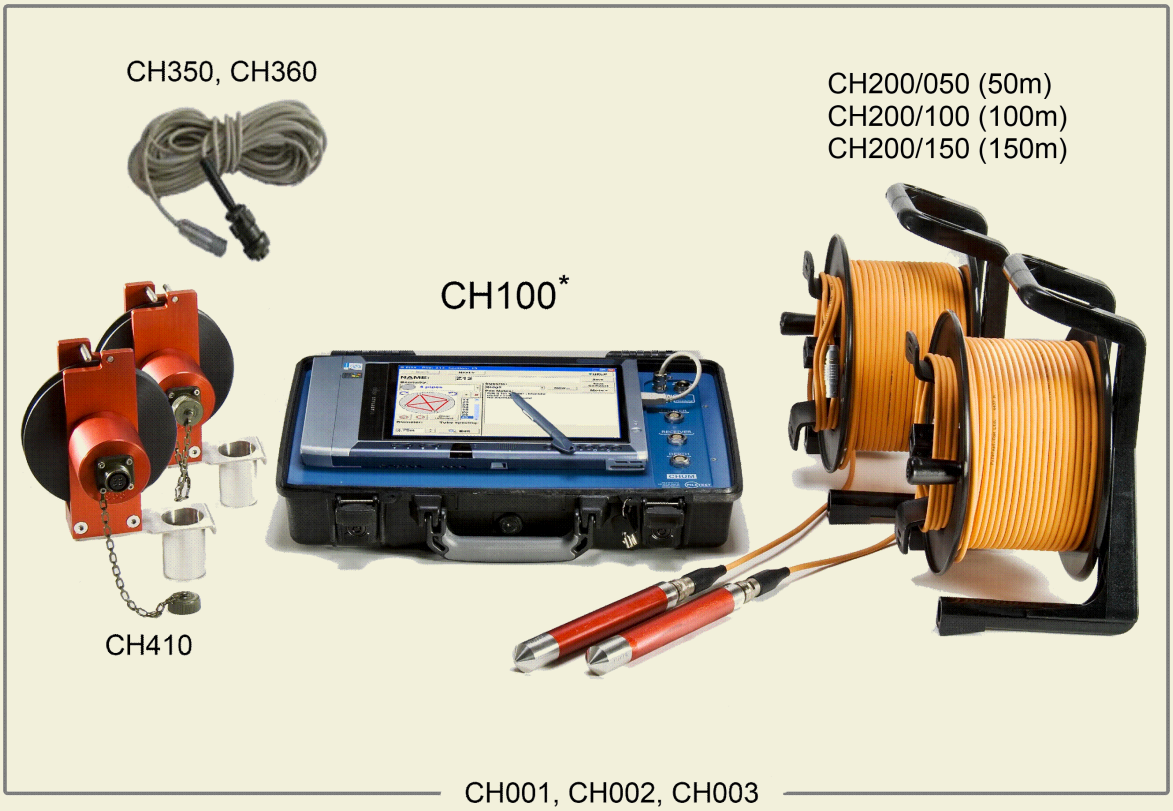
CHUM - Ordering information



* Note: Tablet PC is NOT included.

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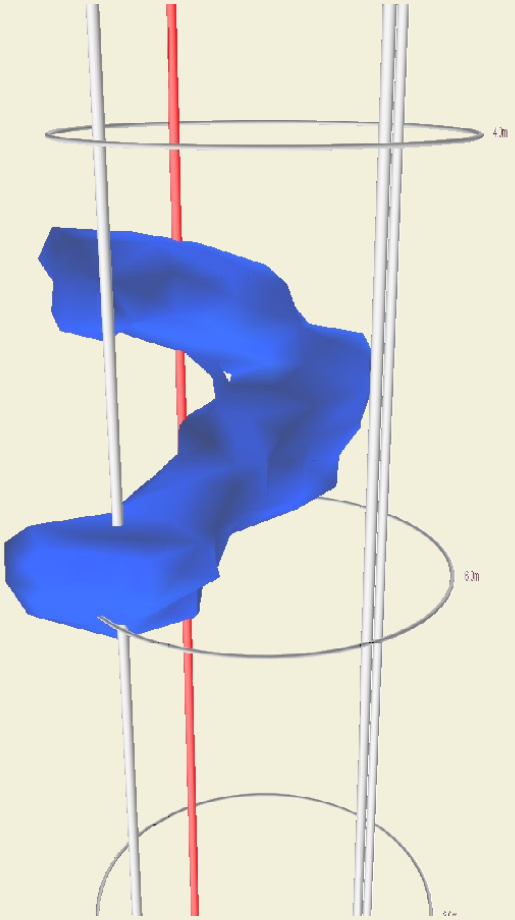
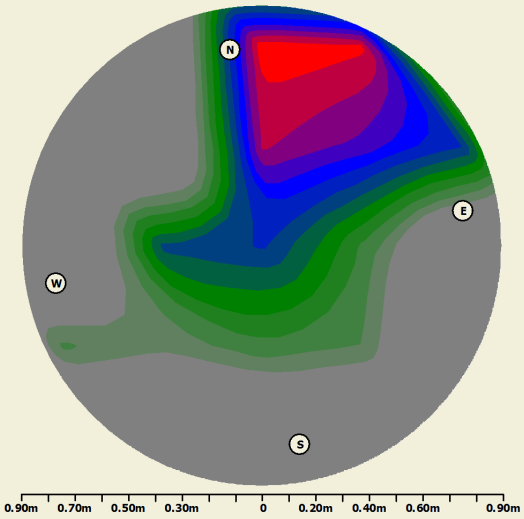
CHUM 3DT

The CHUM 3DT (3D Tomography software for CHUM) is the most advanced, easiest to use and highly practical 3DT solution available today
3D Tomography reveals and organizes information about flaws in the piles in a human-readable form and helps making well-informed decisions.

Main features:

- Easy to use: Wizard-based interface hides the complexity of the calculations.
- Interactive UI—Zoom, rotate, tilt.
- lightning-fast calculations and graphics.
- Vertical and horizontal slices at any depth/direction.
- Immediate velocity threshold selection.
- Wireframe, Opaque and semi-transparent options help visualize the flaws.
- Create a report in a video clip form, in a document form or hand over the free 3DT viewer for anyone to view the results interactively.
- 10 years free software upgrades.





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Take a deeper look

PILETEST

Company profile

At Piletest we develop and manufacture systems for quality control / quality assurance of deep foundations since 1996. Our focus has always been on quality, modularity and ease of use.

Quality

All products undergo extensive testing, including pressure chamber, vibration table, heat oven and more, and carry a full three (3) year warranty (Excluding physical damage).

Modularity

We focus on building pile testing systems, not on computers. Therefore, all our products connect to a standard PC, Laptop, Tablet, Smartphone via USB or Bluetooth connection. This approach minimizes your downtime and keeps you up-to-date and independent, and reduces your overall costs.

Ease of use

We take simplicity and usability very seriously. As a result no formal training is usually required and our users usually start using our systems out-of-the-box within minutes. Our ease of use knowhow, is based on years of field work before started designing our own equipment.

Support

It is important for us, as well as it is for you that *your* final product—the *test report*, is of the highest standards. To help you with this we provide free on-the-job training. We also support you with the analysis of your first projects, and can revise the next ones and comment on the following ones, until we are both satisfied with the results.

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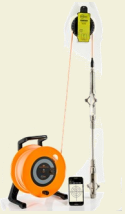
More Piletest Systems

PET
Pile Echo Tester
Model PET Pro USB
Model PET Bluetooth

PSI
Parallel Seismic Instrument

BIT
Borehole Inclination tester



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PILETEST
Take a deeper look

PET
Model: PET Pro USB

PET—Pile Echo Tester (Model: PET Pro USB)

Piletest's Pile Echo Tester (PET) is a user-friendly, highly flexible solution for testing a large number of deep foundations quickly and accurately.
Requiring little-to-no training, PET is a modular, computer-independent system that attaches to the USB port of any regular notebook or a Tablet PC.
The PET system utilizes the pulse-echo method (compliant to the ASTM D5882-07 international standard). To test a pile, the user strikes it with PET's lightweight handheld hammer. The resulting signal, or reflectogram, is captured by PET's digital accelerometer. It is than transmitted to the computer to produce information about the pile's length and shape.

Main Advantages

Ease of use: PET's user-friendly software makes it possible to master the system in less than a day. No additional expensive training is required

Excellent signal quality: PET's super low noise level enables the system to handle extremely long piles

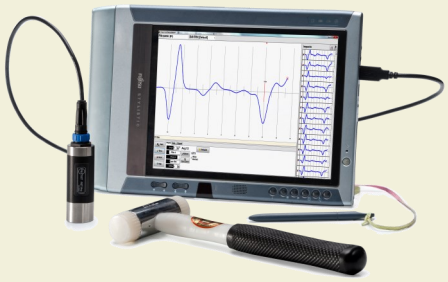
Computer independence: Unlike other system based on an embedded computer (which may quickly become obsolete) PET connects to the USB port of your regular notebook computer or Tablet PC.

Labor saving: PET includes a number of labor-saving features such as advanced project organization; software-suggested wave velocity; Smart Trigger™ and AutoSort to reject anomalous blows; one-touch controls of scale, amplification, and filtering; plus many more features.

Robustness: Specially designed for testing piles, shafts and caissons in construction site environments. The PET sensor is IP67 waterproof and comes with a three (3) year warranty.

The PET Pro USB package includes:

- A digital transducer with waterproof USB cable
- A nylon hammer, spare tips, special putty
- Testing, analysis and reporting software (unlimited number of licenses)
- Interpretation assistance package



PET Pro USB with a Tablet PC
(not included)

Pile	Depth (m)	Reflectogram	Details	Remarks
S*/9	16.8 m	0m 5 10 15 20	Amp:75 Planned:16.0m Avg:5	
S*/13	15.0 m	0m 5 10 15	Amp:55 Planned:15.0m Avg:9	
S*/14	15.4 m	0m 5 10 15	Amp:55 Planned:15.0m Avg:12	
S*/15	14.0 m	0m 5 10	Amp:50 Planned:13.0m Avg:17	Anomaly at 5.1m
T/13	14.2 m	0m 5 10 1	Amp:120 Planned:14.0m Avg:11	

Typical output

On site

PILETEST
Take a deeper look

PET

Model: PET Bluetooth

PET—Pile Echo Tester (Model: PET Bluetooth)

Piletest's Pile Echo Tester (PET) is a user-friendly, highly flexible solution for testing a large number of deep foundations quickly and accurately.
Requiring little-to-no training, PET is a modular, computer-independent system that connects to any compatible computer via Bluetooth protocol.
The PET system utilizes the pulse-echo method (Compliant to the ASTM D5882-07 standard). To test a pile, the user strikes it with PET's lightweight handheld hammer. The resulting signal, or reflectogram, is captured and transferred to the computer by PET's digital accelerometer, providing real-time information about the length and shape of the pile.

Main Advantages

Ease of use: PET's user-friendly software makes it possible to master the system in less than a day. No additional expensive training is required.

Excellent signal quality: PET's low noise level enables the system to handle extremely long piles.

Computer independence: PET Bluetooth connects to any existing or future computer. PET Bluetooth also connects to any Android phone or tablet. There is no dependency on an embedded computer (which may quickly become obsolete).

Labor saving: PET software includes a number of labor-saving features such as advanced project organization; software-suggested wave speed; Smart Trigger™ and AutoSort to reject anomalous blows; one-touch controls of scale, amplification, and filtering - plus many more features.

Robustness: Specially designed for testing piles, shafts and caissons in construction environments. The PET sensor is made of bullet-proof unbreakable Lexan. It is waterproof and carries a three (3) year warranty.

The PET package includes:

- A digital transducer
- A nylon hammer, spare tips, special putty
- Testing, analysis and reporting software
- Interpretation assistance package
- Unlimited number of software licenses

PET Bluetooth with an Android phone

The PET package

Pile	Depth (m)	Reflectogram	Details	Remarks
S*/9	16.8 m	0m 5 10 15 20	Amp:75 Planned:16.0m Avg:5	
S*/14	15.4 m	0m 5 10 15	Amp:55 Planned:15.0m Avg:12	
S*/15	14.0 m	0m 5 10	Amp:50 Planned:13.0m Avg:17	Anomaly at 5.1m
T/13	14.2 m	0m 5 10 1	Amp:120 Planned:14.0m Avg:11	

Typical report

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PSI
Model: 2.0

PSI—Parallel Seismic Instrument

PSI uses the well-known Parallel Seismic method to establish the depth of existing foundations (specifically piles) where the superstructure precludes access to the pile heads.

The test requires the installation of a plastic access tube in parallel, and as close as possible, to the tested pile. The tube should be carried down to a depth exceeding the assumed pile length by a margin of 8-10 m and filled with water. In unsaturated soils the tube should be firmly grouted in the hole to achieve good acoustic coupling with the surrounding soil.

System Components:

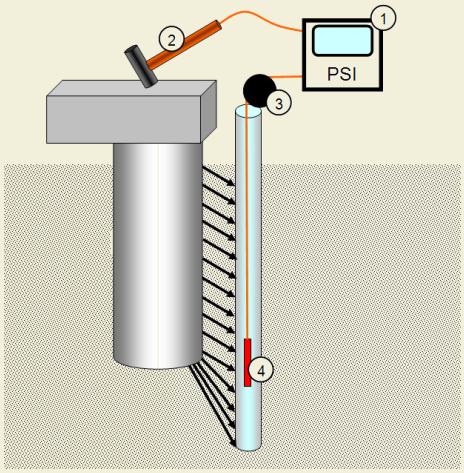
- PSI instrument
- Sledgehammer with a trigger switch
- Digital depth meter (Optionally wireless)
- Hydrophone

Operation:

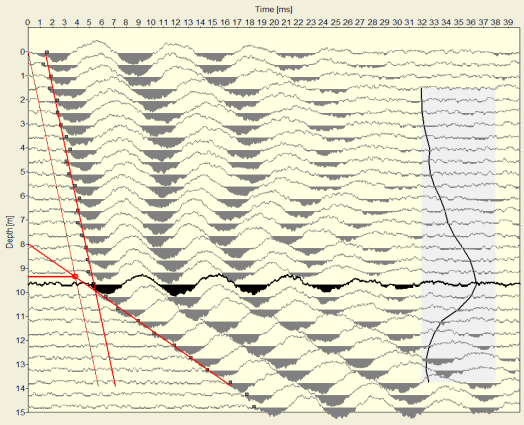
As the hydrophone is lowered in stages inside the access tube, the superstructure is hit with the hammer and the pulse arriving at the hydrophone is recorded in the PC that is connected to the instrument. When all the pulses thus collected are plotted versus the respective depths, they show a typical break in the slope at the depth where the pile tip is located.

Advantages:

- Ease of use: It is usually self-taught in less than a day. No additional expensive training is needed.
- Connects to any PC/Laptop via a standard USB port.
- Interpretation assistance and Second



System Components



Output

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BIT
Model 2.0

BIT—Borehole Inclination Tester

All piling specifications prescribe the allowable deviation of the pile axis from the vertical. Typical limits vary between 1.33% (UK ICE) and 2% (US FHWA). In diaphragm and secant pile walls, the specification is typically even more restrictive.

Unlike traditional systems, BIT uses the auger/bucket itself as a centralizer, thus eliminating the need for a bulky system. The BIT enables fast and accurate determination of inclination in both dry and wet boreholes, vertical or raked.

Large boreholes and diaphragm-walls may be quickly tested several times during drilling to enable real-time corrective action.

Finished pile inclination can be measured through the CSL access tubes.

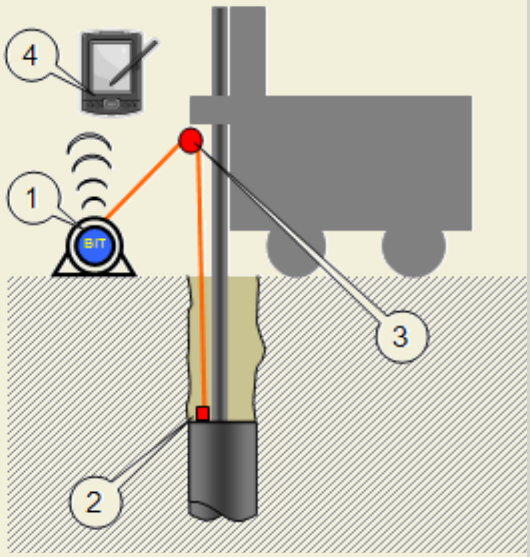
System components:

- BIT instrument, microcontroller-driven, with wireless communication to peripherals and durable cable connection to the sensor.
- Sensor including precision bi-axial inclinometer and a gyro, waterproof to 150m.
- Wireless depth encoder.
- Android smart-phone or tablet with software and Bluetooth communication (not included).
- Access-tube adapter (optional)

Operation:

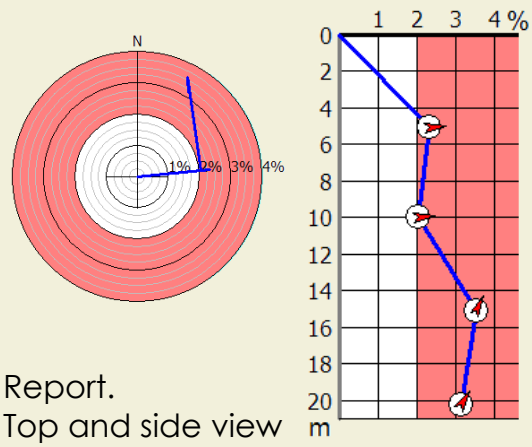
In the open hole, the inclinometer is rigidly attached to the drill bit (bucket or auger) and the depth encoder hung from the rig. The bucket is then lowered (with minimal turning) into the open hole. The descent is stopped at predetermined depths for inclination reading and the deviation calculated in real time by integrating the inclination over depth. When pulling the bucket upwards to the surface, the procedure is repeated. The resulting closure error is distributed over the whole depth.

With the optional access-tube adapter, the BIT can also check the as-made inclination of bored piles.



Schematic view

The BIT system



Report.
Top and side view

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NOTE: Piletest.com has a policy of constant product improvement.
As a result, specifications may change without prior notice.

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