

Borehole Inclination Tester (BIT)

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All piling specifications prescribe the allowable deviation of the pile axis from the vertical. FHWA rules, for instance, limit the pile inclination to 20 mm/m, or 2%. The ICE (UK) specifications allow a deviation of not more than 1:75 or 1.33%. Similarly, these documents also set down the allowable deviation of raked piles. In diaphragm walls, the specification is typically even more restrictive.

Unlike traditional systems, BIT uses the auger/bucket itself as the centralizer. Eliminating the need for a heavy-to-move system. The BIT enables fast and accurate determination of inclination in both dry and wet boreholes. Large boreholes and diaphragm walls may be quickly tested several times during drilling to enable real-time corrections.

System components

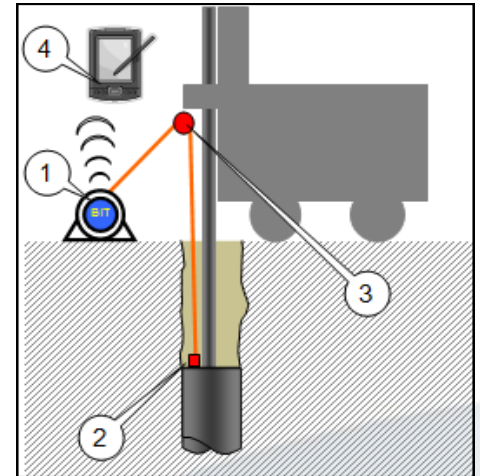
1. BIT instrument, microcontroller-driven, with wireless communication to peripherals and durable cable connection to the inclinometer.

2. Precision bi-axial inclinometer, temperature-compensated, pressure-proof to 150 m depth.
 3. Precision wireless depth encoder.
 4. PC/Pocket PC computer with software and Bluetooth communication.
- Rig operator wireless unit (optional).

Operation

Once the borehole has been drilled to the required depth, 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 (without turning) into the open hole.

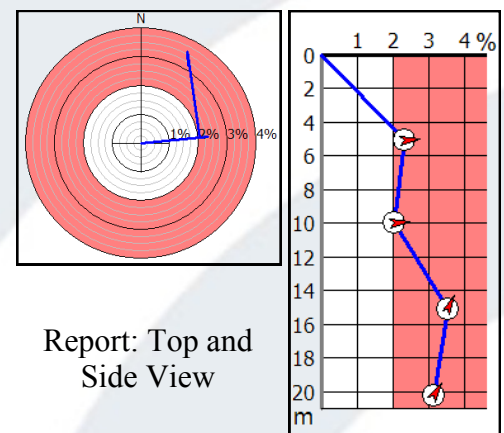
The descent is stopped at predetermined depths for inclination reading and the deviation calculated in real time by integrating the inclination over depth. Having reached the bottom, the procedure is repeated on the way up to the surface. The resulting error is distributed over the whole depth.



System Components



In Site



Report: Top and Side View

Main Office

24 Celestial Drive, Suite B
Narragansett RI, 02882
Phone 800.477.2506
Fax 401.633.6021

Northwest Office

2100 196th Street SW, Suite 109
Lynnwood WA, 98036
Phone 800.477.2506
Fax 401.633.6021

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www.Geo-Instruments.com

sales@Geo-Instruments.com

Technical Specifications

Physical	Housing	Inclinometer : Rugged aluminum case Instrument: Inside Schill cable reel
	Shipping weight	12Kg
	Temperature range	-10 ~ 50 °C
	Humidity	90% (non-condensing)
	Power	internal Li-ion rechargeable battery, 7.4 V 500mAh Sufficient for full day's work AC adapter included
Technical	Wireless	Bluetooth, 2.4Ghz
	Inclinometer	MEMS, dual axis, temperature compensated
	Cables	100m (150m optional) rugged Polyurethane
Performance	Borehole depth	5m-140m
	Borehole diameter	Unlimited
	Productivity	5-10minutes / borehole (Typical)
	Accuracy	Better than 0.1% (0.07°)
Output	Reporting	Produced on office PC, including top view of pile axis, vertical section in the direction of maximum inclination and more
Requirements	Minimum computer	PocketPC running WM5/6 with Bluetooth support — or — Any PC running Windows XP/Vista with Bluetooth support (Internal or USB dongle)

