Quality Assurance for Deep Foundations

Driven Piles
Drilled Shafts / Bored Piles
ACIP / CFA / DD Piles
Micro-piles
Helical Piles
THE PDI STORY

In the mid-1960s, at what is now known as Case Western Reserve University (CWRU) in Cleveland, OH, Professor George G. Goble became the principal investigator of a research project to develop new technologies of pile testing. The Ohio Department of Transportation and Federal Highway Administration funded the initial study, entitled Dynamic Studies on the Bearing Capacity of Piles, which resulted in an electronic testing device displaying the bearing capacity of a pile based on fundamental stress wave theory. During that time, as a graduate student, Dr. Frank Rausche developed the Case Method and CAPWAP® analysis. A short time later Garland Likins, also a graduate student at CWRU, joined in both the software and hardware development efforts.

In 1972, the trio came together to form Pile Dynamics, Inc. (PDI), a firm dedicated to developing quality control instruments for the deep foundation industry, most notably, the Pile Driving Analyzer® (PDA).

PDI continues to innovate the deep foundations industry through the development of quality assurance/quality control testing equipment and technologies. Our technologies are used worldwide on various types of deep foundation structures, both on- and off-shore. We offer customized training in the use of our equipment, as well as certified continuing education through foundation testing workshops, seminars and webinars around the world.

Today, more than ever, PDI is committed to quality, research, innovation and superior customer care. Every PDI instrument includes technical support. Headquartered in Cleveland, Ohio, USA, PDI products excel in quality, reliability, accuracy and durability. Visit our extensive resource library at www.pile.com.

“We not only build pieces of equipment and perform testing, we are actually developers of the testing methods themselves.”

Frank Rausche, PhD, P.E., D.GE., Founder

Pile Types: Driven Piles Drilled/Bored/Micropiles ACIP/CFA/DD Piles Helical Piles
Pile Driving Analyzer® (PDA-8G)
High strain dynamic load testing and pile driving monitoring system

- Performs dynamic load tests on most types of deep foundations
- Calculates bearing capacity and evaluates structural integrity
- Assesses driving stresses and hammer performance
- Available in cabled or wireless versions
- Complete with CAPWAP®, GRLWEAP, and iCAP® software, as well as PDIPLOT to summarize results

Pile Dynamics Analyzer (PDA-DLT)
High strain dynamic load testing for drilled shafts and bored piles

- Created specifically for cast-in-place piles with standard data acquisition options
- Top transducer and F=ma method calculations of bearing capacity, structural integrity and foundation stresses
- Field-to-office data transmission available via SiteLink® Remote Testing

CAPWAP®
Signal matching software that uses force and velocity data measured by the PDA and PDA-DLT

- Simulates a static load test in compression and tension
- Predicts the load displacement behavior
- Determines stresses at each depth along the pile
Wave Equation Analysis of Pile Driving (GRLWEAP)

Pile driving simulation software

- Simulates the pile response to pile driving equipment
- Calculates driving resistance, dynamic pile stresses and estimated capacity based on field-observed blow counts
- Helps select appropriate hammer and driving system with known piling, soil and capacity requirements
- Determines pile drivability and estimates total driving time
- Available in standard and offshore wave versions

Thermal Integrity Profiler (TIP)

Next generation quality assurance to assess cast-in-place concrete foundations

- Evaluates entire cross-section and entire length of shaft using heat generated by curing cement
- Evaluates concrete quality inside and outside of the reinforcing cage
- Reveals necking or inclusions, bulges, variations in concrete cover, shape of shaft and cage alignment
- Accelerates construction time, saving time and money

Static Load Tester (SLT)

Quick and accurate monitoring of force and displacement during a static load test

- Measures up to 16 channels per data acquisition box, with expansion DAB capability
- Significantly reduces field set up time (no field wiring required)
- Includes Smart universal inputs from many types of sensors, vibrating wires, resistance strain gages, digital transducers and more
- Offers real-time graphic presentation of load, strain, displacement and pressure measurements
Shaft Quantitative Inspection Device (SQUID)
A new technology for quantitatively assessing cleanliness and competency of the bottom of drilled shafts or bored piles

- Measures the thickness of soft material or debris on top of the bearing strata, providing a force versus displacement output in numerical and graphical form
- An objective, quantitative assessment is reported through independent penetrometers vs pressure measurements, digitally processed and sent wirelessly from the drilling location to the SQUID tablet
- Quickly and efficiently attaches to any drill stem or Kelly bar by site personnel

Shaft Area Profile Evaluator (SHAPE)
A cost effective quality assurance testing device providing a visual representation of foundation excavation prior to concrete pour in wet conditions

- Wireless acquisition calculations of shaft profile to determine shaft radius, volume and verticality
- 360 degree, 2D and 3D profile views
- Data acquisition at a rate of approximately one scan per second, with eight channels scanned simultaneously
- Quick connection to Kelly bar or can be used with a top mount winch system

Pile Integrity Tester (PIT)
Low strain integrity testing by Pulse Echo or Transient Response methods

- Reveals potential shaft or pile defects such as major cracks, necking, soil inclusions or voids
- May determine unknown pile lengths
- Available in three versions: velocity-only, force and velocity, or two-velocity channels
- Complete with PIT-W Standard or optionally with PIT Professional reporting software
**Cross-Hole Analyzer (CHAMP-Q)**

Evaluation of concrete quality by the Crosshole Sonic Logging Method (CSL)

- Four probes (six profiles) can be pulled at once - saving time and money
- Color-coded CSL transceivers offer optimized speed of testing and data entry
- Performs real-time, onsite analysis as well as data transfer to a PC with CHA-W reporting software
- Offers PDI-TOMO 3-D tomographic software for superior results of questionable areas

**PDI-TOMO**

3D tomographic software for Crosshole Sonic Logging (CSL)

- Offers superior, intuitive visual identification of damaged or questionable areas via CSL data
- Generates efficient and easily comprehensive, quantitative engineering analysis
- Provides a valuable add-on service for the testing engineer

**Pile Installation Recorder (PIR)**

Automated monitoring equipment that assists in the installation of augered cast-in-place (ACIP) / continuous flight auger (CFA) and drilled displacement (DD) piles

- Records and displays accurately measured pumped grout volume and auger depth in real time, optionally with grout pressure or torque measurements and RPM
- Installation log results print immediately on a small field printer
- May be installed in any type of dedicated or general purpose rig equipment
- Can be used in low headroom applications
SPT Analyzer

Determines energy transferred by SPT hammers using force and velocity measurements

- Measures N Value to help improve reliability of soil strength estimates in geotechnical applications
- Multi-touch gesture and screen color scheme options for better data view
- Easy report generation integrated in the SPT-S software program

E-Saximeter

Hand held instrument registering relevant pile driving parameters, calculating diesel hammer stroke, or hammer blows per minute (BPM), for an accurate pile driving log

- Counts hammer blows and computes blows per minute for all hammer types
- Calculates stroke height for diesel hammers
- Provides a drive log of blow count as a function of depth
- Optional accessories allow for impact velocity measurements to compute kinetic energy and depth measurements

Thermal Evaluation of Mass Pours (TEMP)

Measures temperature in various points of a mass pour as curing cement generates heat

- Thermal Wire® Cables tied to reinforcement provide digital readings up to 105 degrees Celsius
- External data loggers read and store temperature measurements
- Complies with ASTM C1074 for estimating concrete strength by the maturity method
Pile Dynamics, Inc. (PDI) manufactures industry standard, high quality Deep Foundation testing equipment. Since 1972, PDI has been the world leader in developing, manufacturing and supplying state-of-the-art QA/QC testing and monitoring products and software for the deep foundations industry.

Supplying Testing Instrumentation Globally

216.831.6131 | info@pile.com | pile.com