Pile Dynamics Analyzer- DLT (PDA-DLT)

High strain dynamic load testing for drilled shafts and bored piles

Reliable. Efficient. Effective.

The Pile Dynamics Analyzer – Dynamic Load Tester was designed specifically for quality assurance testing of drilled shafts and bored piles. The PDA-DLT allows for multiple configurations of force measurement. The system acquires data from accelerometers and strain transducers attached to a pile or shaft so that High Strain Dynamic Tests (ASTM D4945) may be performed. The tests require the impact of a suitable drop weight.

The PDA-DLT evaluates:

- Bearing Capacity
- Structural Integrity
- Foundation Stresses

High Strain Dynamic Load Test with the PDA-DLT

The PDA-DLT assesses bearing capacity and structural integrity. Preliminary field results are further analyzed with the CAPWAP® software, for results that correlate very well with static load tests. High Strain Dynamic Load Tests may be performed on drilled shafts, continuous flight auger, or cast-in-situ piles. The PDA-DLT makes drilled shaft testing easier with the option of conducting the test with four or more wireless strain transducers. The system can also be used to collect data in accordance with ASTM D7383 for Rapid Load Testing.

- Force measurement may be taken via load cell/dolly, traditionally or from ram measurements
- Requires minimal impacts
- Set is measured after each impact
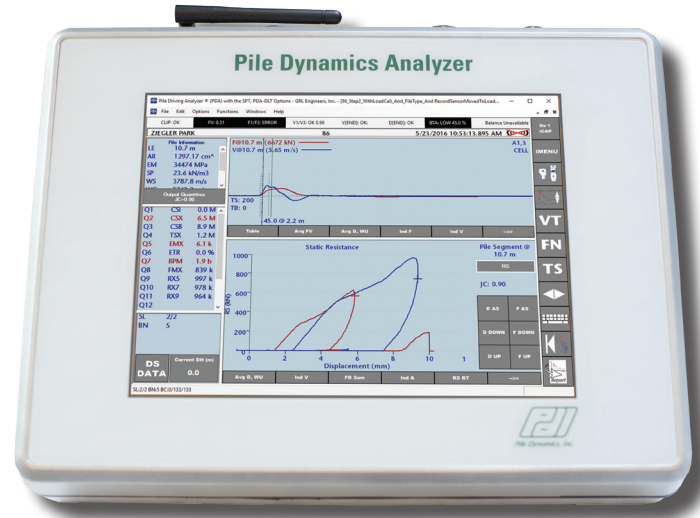
Eight Universal Data Channels Recommended

Eight channels of data acquisition - four strain transducers and four accelerometers – are recommended for dynamic tests of augered cast-in-place / continuous flight auger piles and drilled shafts, and might be helpful for spiral-welded pipes. More channels may be required if a load cell is used.

All PDA-DLT channels, either in Wifi, Wireless or Traditional modes, are compatible with Smart Sensors (no need to input sensor calibration into the PDA).

PDA-DLT Software

The PDA-S software operating in DLT mode streamlines data collection and analysis for drilled shaft (bored pile) testing. File set-up includes the ability to model force measurements taken on the pile, a load cell, or the ram. Inertial effects are automatically accounted for when testing with the load cell or ram instrumentation.

Data collection allows the user to note individual drop height and set values for each impact as well as an automatic tabular summary of measurements for all blows. Additionally, force vs. displacement curves may be plotted for each impact.

PDA systems include licenses of CAPWAP®, GRLWEAP and of the PDA software suite, including PDA-S with iCAP® and PDI-Curves.

CAPWAP uses force and velocity records measured by the PDA sensors to, by signal matching, determine resistance distribution and dynamic soil response and simulate a static load test. Hundreds of comparisons demonstrate the very good correlation of CAPWAP analysis with static load testing results. CAPWAP analysis of PDA data is the standard of practice for Dynamic Load Testing.

GRLWEAP can be used to select a hammer for efficient installation or to evaluate the suitability of a drop weight system for the Dynamic Load Test of a drilled shaft.

- Dynamic Load Testing for Drilled Shafts
- Up to 16 channels of data acquisition available with eight wifi boxes and any combination of strains and accelerometers
- Complete with CAPWAP®, GRLWEAP, and iCAP® software
- Field-to-office data transmission with SiteLink

PDI Software Suite

- PDA-S offers a more intuitive interface than former PDA programs, and runs both in the PDA-DLT and in an office computer during post processing, offering touchscreen as well as desktop functionality and simplifying the software learning process. In addition to soil resistance at the time of the test, PDA-S outputs a vast array of other variables, customized by the user for each application. PDA-S also issues warnings and alerts during data input and acquisition. It outputs fully customized graphs, with up to three graphs appearing on the screen in real time.

- iCAP calculates capacity at the time of testing through a signal matching procedure. Because it is based on CAPWAP logic, it is a step beyond capacity determined by the Case Method. With no user interaction, iCAP extracts the soil behavior from dynamic measurements, computes capacity at the time of test, and produces a simulated static load test graph in real time. The PDA-DLT offers one touch iCAP results in the field.

- PDI-CURVES combines plots of Force-Velocity versus time (required by ASTM D4945), and of other quantities from multiple PDA-S files in one single document.

Pile Dynamics, Inc. (PDI) is the world leader in developing, manufacturing and supplying state of the art QA/QC products and systems for the deep foundations industry. The company is headquartered in Cleveland, Ohio, USA, with offices and representatives worldwide. For additional information visit us at www.pile.com or contact info@pile.com today.