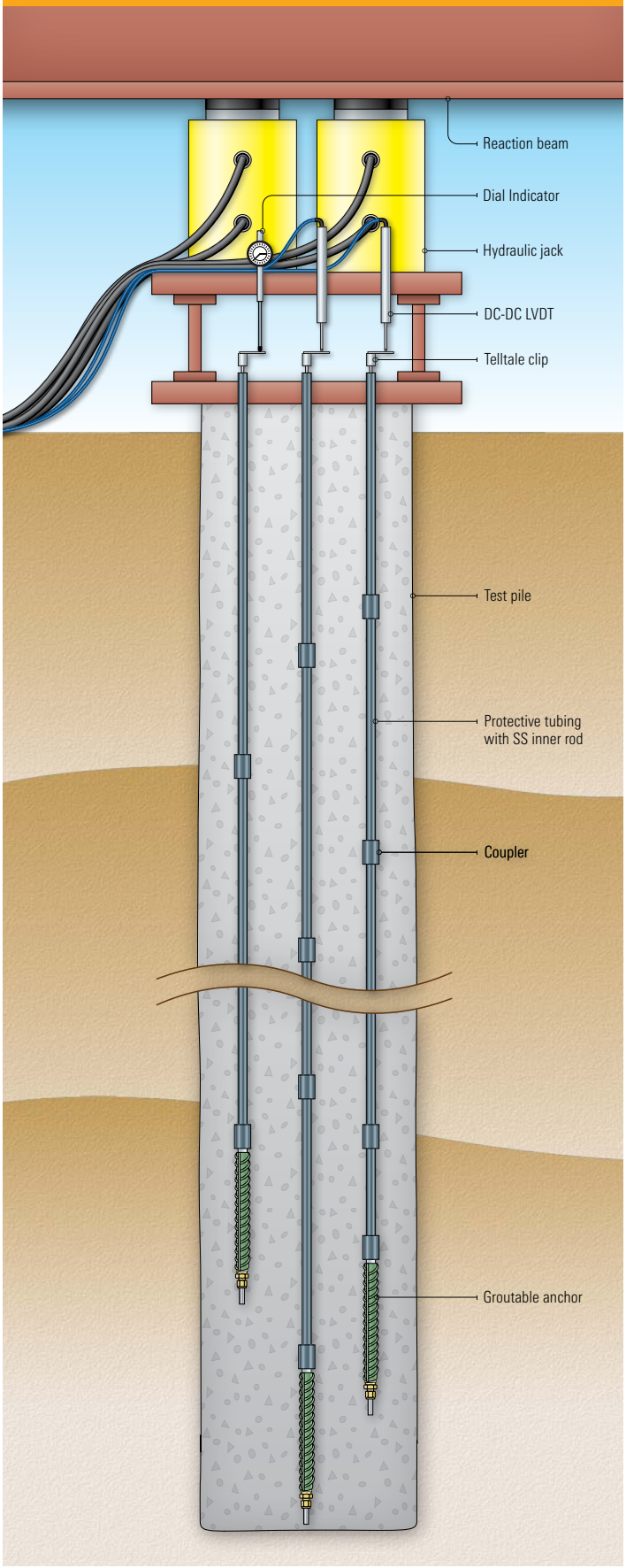
TELLTALES

GEOKON®

MODEL 1800



Model 1800 Telltale installation, as used for static load testing of a pile.

APPLICATIONS

Telltales are often used to measure the pattern of load transfer in:

- Piles
- Drilled shafts
- Tieback Anchors
- Information on pile tip movements and deflections along the pile.

OPERATING PRINCIPLE

Telltales are commonly used in piles subjected to Static Load Tests, the results of which provide information used to confirm (or refine) the design of deep foundations. Static load testing applies load incrementally to a deep-foundation element, while measuring foundation movement.

In static axial compression and tension load tests, applied loads are determined using a load cell or hydraulic jack pressure and the head movement is measured using digital or mechanical dial gauges, or displacement transducers. The applied load vs. head movement is plotted and interpreted to define the foundation's geotechnical failure. Additionally, embedded instrumentation consisting of strain gauges or telltales can be added to measure foundation strain, from which the load in the foundation can be estimated. The resulting load transfer profiles present load in, and resistance along, the foundation's length, as well as unit toe resistance. This information is used to refine static analysis methods and calibrate dynamic pile monitoring results.

ADVANTAGES AND LIMITATIONS

One of the major advantages of the telltale system is the fact that the telltale rods can be inserted into protective tubing after the pile has been driven or cast, thus reducing the likelihood of damage. This configuration also allows the telltale rods to be removed after testing is complete and reused on subsequent tests.

The analysis of telltale measurements depends primarily on the precision of the measurements and how accurately the area and modulus are known. Furthermore, telltale data intended for load distribution analysis must be obtained with an accuracy much greater than that normally used for measurements in static load tests, typically, the minimum sensitivity required is 0.0005" (0.01 mm).

Groutable Anchor

Model 1150-42 Telltale clip

Model 1400-1 Dial indicator

Model 1450 DC-DC LVDT

SYSTEM COMPONENTS

A telltale normally consists of a protective tube extended to a steel plate or rebar anchor, which is embedded inside a concrete pile, or welded onto steel piles at various locations along the pile length.

To measure the deflection at the tip, the telltale must be anchored to the pile by the steel plate or rebar, but isolated from the pile grout everywhere else. This is done by placing the telltale rods inside protective tubing and sealing the ends. Sometimes the annular space is filled with grease other compound for lubrication and to prevent grout intrusion. If the telltale rod is not isolated from the grout by the sleeve, it will not function correctly.

The movement of the top of each telltale, relative to the top of the pile is measured with a dial gauge having 0.001" (0.25 mm) sensitivity. Alternatively, electronic displacement transducers, with similar sensitivity can be used.

Telltale clips, secured to the tip of each telltale rod facilitate ease of readout when using dial gauges.

Normally, telltale readings are referenced to the top of the pile. By noting the location of the specific telltale anchor and measuring the relative movement of the individual rod, elastic shortening of the pile at that location can be obtained. With this information, the load (Q) in the pile at the midpoint between two telltale anchors, separated by a distance L can be obtained using $Q = A(\Delta L/L)E$, where A = the cross sectional area of the pile and E= the modulus.

ORDERING INFORMATION

ROD-101: Flush coupled 6 mm (0.25") Ø SS rod
ROD-103: Flush coupled 6 mm (0.25") Ø graphite rod
ROD-105: Flush coupled 6 mm (0.25") Ø 1018 mild steel rod
TUB-101: 6 mm (0.25") Ø SCH 40 PVC tube
TUB-160: 6 mm (0.25") Ø SCH 80 PVC tube
1150-13: Groutable anchor with bayonet type attachment
1100-GROUTABLE: Groutable anchor
1150-41: Plate anchor
1150-42: Telltale clip
1400-1-2: Dial indicator, in carrying case, English dial, 2" range
1400-1-4: Same as above, 4" range
1400-1-6: Same as above, 6" range
1400-2-2: Dial indicator, in carrying case, metric dial, 50 mm range
1400-2-4: Same as above, 100 mm range
1400-2-6: Same as above, 125 mm range
1450-2: DC-DC, blind end style, 2" (50 mm) range
1450-4: Same as above, 4" (100 mm) range
1450-6: Same as above, 6" (150 mm) range
1450-7: DC-DC mounting brackets
1450-8: DC-DC swivel post and magnetic base

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