



Designation: D7299 – 20

Standard Practice for Verifying Performance of a Vertical Inclinometer Probe¹

This standard is issued under the fixed designation D7299; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice describes three function tests that together can be used to verify that a vertical traversing inclinometer probe is working properly.

1.2 This practice does not address calibration routines, electronic diagnostics, or repair of the probe, nor does it address inspection of the probe's mechanical parts.

1.3 This practice is not intended to replace manufacturers' recommendations for servicing and calibration of inclinometer equipment, nor is it intended to replace maintenance and calibration schedules established by users as part of their quality programs.

1.4 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026.

1.6 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *This international standard was developed in accordance with internationally recognized principles on standard-*

ization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 *ASTM Standards:*²

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D6026 Practice for Using Significant Digits in Geotechnical Data

3. Terminology

3.1 For definitions of common technical terms used in this standard, refer to Terminology D653.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *inclinometer casing, n*—a special-purpose pipe, typically installed in boreholes, with internal guide grooves that control the orientation of the inclinometer probe and that provide a flat surface for repeatable tilt measurements.

3.2.2 *inclinometer survey, n*—a set of readings obtained with the inclinometer probe and readout.

3.2.3 *vertical inclinometer probe, n*—an instrument comprised of a downhole probe which uses internal sensors to detect its own orientation relative to the force of gravity, with a wheel assembly for lowering into the inclinometer casing along the alignment grooves, connected by a cable to a readout or datalogger at the surface.

3.2.4 *zero offset, n*—non-zero values reported by the A-axis and B-axis sensors when the probe is held precisely vertical.

4. Significance and Use

4.1 Inclinometer monitoring programs often run several years or more. During this time, hundreds of surveys can be collected. Each new survey is processed by comparing it to a baseline survey.

¹ This practice is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.23 on Field Instrumentation.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

*A Summary of Changes section appears at the end of this standard