Light Weight Deflectometer
TERRATEST 4000 STREAM
According to ASTM E2835-11 and German Standard TP BF-StB B8.3

New Option
STREAM
Your Test Results to Smartphone

Made in Germany
Certified by TÜV

The Time and Cost Saving Compaction Test
- Earthwork
- Civil Engineering
- Canal Construction
- Road Construction
- Pipeline Construction
- Gardening & Landscaping
- Railroad Construction

Complete Equipment
Qualified for any Construction Site – Suitable for any Weather!

Weatherproof Electronic Box
GPS System
Voice Navigation
PC Software
On-Site Instruction
Directly from Manufacturer
2 Years Warranty

Android App for Smartphone

STREAMING
IP53
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info@terratest.de

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- Test Procedure Needs Only 2 Minutes
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- Complete Equipment with Weatherproof Electronic Box and All Features
- Directly from German Manufacturer

**Android App**

Send the results from TERRATEST to smartphone and tablet in no time. Directly on Construction Site!

Measurements ready to be sent to office and customers in real time.

**Precision Acceleration Meter**

Sensor Equipment Designed for Applications under Rough Environment Conditions

**Inclined Load Plate Handles**

Ergonomic Handling for Mobile Measuring System CARRELLO

**Electroless Nickel Dispersion Coatings**

Surface Extremely Resistant Against Influences to be Expected on Construction Sites

**Active Transport Fix-System**

Push-Pull Weight Fixing
Ensures Safe Transport of Load Plate Assembly

- Catching Ring Easy-to-Handle
Hexagonal Handle with Chamfered Edges, Makes carrying of Device easy

**Furnish Compaction Proofs on your own**

By means of software TERRATEST 2.0

Results captured are quickly analyzed, compiled and documented by easy-to-handle software package TERRATEST 2.0. By means of the USB-device provided, files are transferred to the PC in no time, measurements afterwards to be opened by the software as well. Individual log and statistical analyses of the test field are automatically created. In conformity with German test Directive TP BF-StB 8.3; Requirements of obligatory self-supervision with respect to compaction proofs acc. to ZTV-E-StB 2009 resp. ZTV A StB 2012; are met without any effort. Simultaneously with each measurement, the integrated GPS system saves the coordinates of the measuring point. In the end, the result is presented automatically on the PC together with date, time and a Google Maps satellite photo in form of an individual log. Each measurement can distinctly be assigned, ensuring a legally effective identification.

Your Results to Smartphone

**NEW OPTION**

| STREAMING |
| Android App | Weatherproof Electronic Box | Printer | Rechargeable Battery | Voice Navigation | GPS System | PC Software | Directly from Manufacturer | 2 Years Warranty |

**EXTRACT**

Your Results Directly to the Smartphone

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By means of the Android APP; construction project, client, material, type of layer and testing personnel can be entered, then by E-Mail send the log to your office or to the client himself.

The test log prepared this way can be completed by Google Maps satellite photo, settlement curves, personal notes and your company logo.
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Rugged Display
Reliably Protecting Electronics,
Service by External Pushbutton

Integrated Printer
Print Results directly on the Construction Site,
For Permanent Compaction Proof

USB-Device
For Quick Data Transfer to PC,
All measurements Automatically Stored.

GPS System
Allows Legally Effective Identification
of Measuring Position

Rechargeable High-Duty Power Battery
Model with short charging times and a long lifetime
Sufficient for **2,000 Measurements/600 Printouts** when loaded

Voice-Navigation
Just Follow
Spoken Instructions

Easy-Fixx Connections
Rugged Plugs and Sockets,
Perfect for Use on Construction Sites

Backlit Graphic Display
Clear Visualization of Results,
Intuitive Menu Structure

Service by External Button
On-Touch Operation with No Need
to Open the Case in Dusty Environment

**Weatherproof Electronic Box**
The electronics are housed in a stable undestroyable case with external pushbutton. No damage by water, sand and dust to be expected.
This is the wrong way:
The static load plate test with a counter weight, e.g. a loaded truck, consumes too much time and cost, and is often nearly impossible to perform, especially in pipeline construction or places difficult to reach. We have a better suggestion!

Recognized

PROOF OF COMPACTION

Standard Values acc. to ZTV E-StB 2009 and ZTV A-StB 2012

ZTV E-StB 2009 specifies that:

4.5.2 Requirements with Respect to Modulus of Deformation

Requirements defined in the following refer to the 10% Minimum Fractile. For a road crust of construction classes I to IV, on an anti-freeze basis or foundation a deformation modulus on the soil of at least to $E_{v2} = 120 \text{ MN/m}^2$, or alternatively $E_{vd} = 65 \text{ MN/m}^2$ is necessary; for classes of construction V and VI of $E_{v2} = 100 \text{ MN/m}^2$ or $E_{vd} = 50 \text{ MN/m}^2$. Deformation modulus $E_v$ can be proven by static load plate test acc. to DIN 18134, and deformation modulus $E_{vd}$ by dynamic load plate test acc. to TP-BF-StB part 88.3.

Table: Standard values for assignment of static deformation modulus $E_{v2}$ or dynamic deformation modulus $E_{vd}$ to degree of compaction $D_{pr}$ for coarse grained groups of soil

<table>
<thead>
<tr>
<th>Type of soil</th>
<th>Degree of compaction $D_{pr}$ in %</th>
<th>Deflection modulus $E_{v2}$ in MN/m$^2$</th>
<th>Allocation of $E_{vd}$ to $E_{v2}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN 18 190</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravels and sands with $\leq 7%$ by weight $&lt;0.063 \text{ mm}$</td>
<td>$\geq 103$</td>
<td>$\geq 120$</td>
<td>$\geq 65$</td>
</tr>
<tr>
<td>Gravels with narrow grain size distribution, sands with narrow, wide or intermittent grain size distribution</td>
<td>$\geq 100$</td>
<td>$\geq 100$</td>
<td>$\geq 50$</td>
</tr>
<tr>
<td>Mixed gravels and sands with 7-15% by weight $&lt;0.063 \text{ mm}$</td>
<td>$\geq 97$</td>
<td>$\geq 80$</td>
<td>$\geq 40$</td>
</tr>
</tbody>
</table>

1) These reference values can be used as standard values for proof of obtained compaction acc. to ZTV E-StB 09 paragraph 14.3.5 resp. ZTV A-StB 12 between supplier and client. All information is supplied without warranty. ZTV E and ZTV A have to be consulted.
Voice-navigation guides the user by spoken instructions clearly and unequivocally through measuring procedures. A test can be performed also by personnel disposing only of normal formation. The test is quickly documented by means of the professional TERRATEST®.

Quote from current edition of ZTV A-StB 2012:
„The dynamical load plate test is particularly qualified for pipeline trenches, as it enables tests to be performed at different levels within a minimum of time.“

Furnish the compaction proof in an efficient and safe manner. The measuring principle of the light weight deflectometer TERRATEST 4000 STREAM represents an easier method: Quick and sure!

Thanks to automatic storage of test result, position, time and date. All relevant requirements for obligatory self-supervision are simply to be met.

Voice-navigation and one-button operation considerably simplify service on construction sites. Remaining questions can be solved as well. A comprehensive initial training by our TERRATEST® specialists is available.

SAVING TIME and MONEY

Investment for TERRATEST® instruments is amortized within a couple of months, as it assists users saving money every day. Expensive external soil expertise is no more needed; the compaction proof is furnished at once.
Since we have purchased our new TERRATEST® equipment, we can carry out the compaction tests on our own, external testing laboratories are no more necessary. The software furthermore enables the results to be documented and filed on the PC without great effort. A professional documentation is quickly created by a few clicks.

Engineer Willy Grothe, CEO of Calvörder Construction, Germany.

Comprehensive DOCUMENTATION

TERRATEST® has configured its software thoroughly with the target of professionally presenting measuring results. Each document features:
- Title page
- Single logs with satellite photo of the measuring position
- Statistical analysis of all single results
- Overview of all individual measuring positions in a Google® Maps satellite photo

Each user from now on is able to establish on his own, a detailed and structured documentation of his compaction proofs without external assistance.

Measuring Results
Professional Presentation

"TERRATEST® 2.0" has been designed with maximum user convenience in mind. No complicate supplementary procedures for analysis and filing are required. A photo of the measuring point as well as a Google® Maps satellite photo in the log may be included.
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Furthermore, the easily usable USB-device allows the log files to be sent to the PC and to be opened by the software as well. Individual logs and statistical analyses of the test field are automatically created. In conformity with German test Directive TP BF-StB 88.3: Requirements of obligatory self-supervision with respect to compaction proofs acc. to ZTV E-StB 2009 resp. ZTV A StB 2012, are met without any effort. Simultaneously with each measurement, the integrated GPS system saves the coordinates of the measuring point. In the end, the result is presented automatically on the PC together with data, time and a Google® Maps satellite photo in form of an individual log. Each measurement can distinctly be assigned, ensuring a legally effective identification.

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