

Dynamic load plate test

ASTM E2583 - 07(2015) Standard Test Method for Measuring Deflections with a Light Weight Deflectometer (LWD)

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The Light Falling Weight Deflectometer (LFWD) is the testing device of the technique of dynamic plate loading test (DPLT) used for compaction control of constructed subgrades and compacted soils. The apparatus is easy to handle because of its light total weight (about 30 kg) and it can be easily operated.

When being released, the 10 kg falling weight freely falls from a height of 72 cm, along the guide rod, to hit an installed dashpot unit in the middle of the loading plate. The loading steel plate has a diameter of 30 cm and a thickness of 20 mm and its weight is 15 kg. The steel plate is configured such that it is sufficiently rigid to settle with the soil under the impact of the falling weight. A centering sphere is positioned in the middle of the loading plate to entitle for transmitting only the compressive forces. The apparatus is calibrated to deliver a maximum pulse force of 7.07 kN with an impact duration of about 17–20 ms and a corresponding frequency of 8–100 Hz.

In the standardized testing procedure of the LFWD [1], the loading steel plate is firmly rested onto the surface of the tested soil. Three initial seating drops are to be performed to create full contact between the plate and the tested soil. Three further working drops are subsequently performed, for which the plate deflections are recorded by means of the deflectometer. From the records of the three working drops, the mean value of the peak plate deflection is electronically estimated to be employed in evaluating the M_{vd} modulus.

Used equipment

ECM-LDD 100 (ECM Electronic Control & Measurement) - device used to perform rapid control of dynamic parameters of compacted soil. Selection of technical parameters:

- Measurement of M_{vd} in range 2 - 220 MPa,
- Weight of the measuring plate 15 kg,
- Diameter of the circular loading plate 300 mm,
- Weight of impact weight 10 kg,
- Pulse force 7,1 kN,
- Impact duration 17 - 20 ms.



Record –Light Weight Deflectometer

Site name:

Location (x, y, z; GPS):

Soil type:

Soil temperature:

Date:

Sketch (scale 1: / without scale) *)							
with other type of test (static load test):							

Notes: