

## Technical specifications

SMART-BC disc diameter is 163mm, drop height adjustable (cca  $72\pm 2\text{cm}$ ),  $7070\text{N} \pm 2\%$  load transfer. Measurement accuracy  $\text{Trd}\% \pm 2\%$ ,  $\text{Ed} \pm 2.6\text{MPa}$ . Measurement range  $\text{Trd}\% 75\text{-}100\%$ ,  $\text{Ed} 5\text{-}150\text{Mpa}$ . It measures the degree of Compactness, and the Bearing Capacity, and the Ed-end modulus (last 3 drops). From the results you can calculate the following parameters (based on examined regression analyses):

Californian Bearing Ratio the CBR%

Evib (CCC-method, BOMAG)

s (mm) estimated settlement after 5 years (on 25cm layer thickness)

E2v static bearing capacity

Evd the big plate dynamic modulus

cdyn bedding coefficient which is used in industrial building base layers

## AVAILABLE

**SMART-BC:** (Small-Plate Light Falling Weight Device) available in wireless type with 163mm diameter disk and free LEVEL-0 app.

**BC1-wire:** available with data storage unit 163mm diameter disk and carrying case free measuring software. Relevant standard: CWA15846

Webstore [www.alltest-smart.com](http://www.alltest-smart.com)

**SMART-LFWD:** (SMART Big-Plate Light Falling Weight Device) bluetooth communication with smartphone, Android / iOS / Win application. Relevant standards: TP BF-StB B 8.3, RVS 08.03.04, RIL 836, UNE 103807-2, e-UT09.02.32, ASTM E2835-11, ČSN 736192, TB 10102-2004, J338-2004



GREEN TECHNOLOGY



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# WHAT'S THIS?



## What means “SMART”?

The instrument is the smartphone itself, which communicates with additional equipment on bluetooth. The measuring software runs on your phone using a refreshable application.

The SMART-devices are:

**SMART-BC** for measuring the Dynamic Compactness-rate (modified) and the Ed dynamic modulus under-plate press  $p=0.35\text{MPa}$

**SMART-OSP** for measuring On-site Proctor (modified) and Moisture Correction Coefficient curve

**SMART-LFWD** for measuring Evd using your smartphone and a  $d=300\text{mm}$  big-plate, under-plate press  $0.1\text{MPa}$ .

## SMART-BC: WHAT IS IT & HOW TO USE

**What's this?! It looks like an LFWD, but it is not!** (No Zorn, HMP Magdeburg, no Terratest, Prima100, Dynatest, no C120 different from all old instruments)

**This is the new developed Dynamic Compactness Rate Tester**, which can measure with a new theory from the settlement curve determine with 10-18 drops published in 2017 in Seoul on the ISSMGE Conference. We measured the dynamic compactness rate (Trd% or Crd%) with the LFW loading system, from the residual deformations! This method gives the same result, as the isotopic one (or other density-ratio systems) justified by theoretical deduction.

Of course it is possible to measure the dynamic modulus also from the first six drops and one can determine the Ed dynamic modulus with  $0.3\text{MPa}$  under plate press. Two test at once BC= Bearing Capacity and Compaction-rate Tester.

This new-developed instrument is easy to handle and can be used practically on all civil engineering construction, embankments, fillings, roads, railways, etc. It allows measurement of bearing capacity of granular construction layers, quickly and repeatable. No needs counterweight, easy to handle and easy to learn. GPS positioning on every measuring point (LAT-LON).

**SMART-BC is the “Z” Generation**, the latest and very new revolutionary version of the LFWD family, the first smartphone app to determine the compactness all over the world. It has a bluetooth contact to your smart-phone. The application is free in case of LEVEL-0. You have got more information, 12 measured /calculated parameters by the LEVEL-1 application. Available with Android / iOS / Win app. Lot of information you have got for your decision, or to avoid the unwished settlement. Level-2 app gives You suggestions how increasing the compactness / bearing capacity based on measured results.

## Principle of Trd% and Ed measurement

The deflection is measured by an accelerometer and quartz timing. The Trd% measuring theory based on the residual deformation, calculated the settlement curve applied 10-18 drops published in 2017 in Seoul on the ISSMGE Conference.

The Ed result is given as the average deflection of 4-5-6 drops. The calculated dynamic modulus called Ed (MPa) different from the old theory in under-plate press. The time of the loading is 18ms. The relevant standard is CWA15846

Suitable for measurements according to the following standards also (with other plate and other software): TP BF-StB B 8.3, RVS 08.03.04, RIL 836, UNE 103807-2, e-UT09.02.32, ASTM E2835-11, ČSN 736192, TB 10102-2004, J338-2004

## Where to use

For self-control constructors Q.C and Q.A. Accredited Labs can use for quality certification. Applicable of all constructions, particularly foundation of industrial hall, railways, roads, bridges, pavement gravel-aggregate layers, waterworks, urban utility, sports ground constructions, everywhere where the compactness-rate and bearing capacity limits are required.