

# INSTRUCTION MANUAL



■ MADE  
■ IN  
■ GERMANY



Calibration-  
INSTITUT  
commissioned by the  
Federal Highway  
Research Institute



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## The Light Drop-Weight Tester

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- 1 Certificate „BASy-authorised calibration institute ...“
- 2 Certificate of Calibration
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## Applications

The dynamic plate pressure test employing the Light Drop-Weight Tester is used in earthworks and traffic route construction. It serves to determine the soil bearing capacity and the degree of compaction of soils and non-cemented base courses, and assists in soil improvement.

The test method is suited for coarse-grain and mixed-grain soils with a maximum grain size of 63 mm. It may also be used to determine the dynamic modulus of resilience of soil within the measuring range of  $E_{vd} = 15\ldots70$  MN/m<sup>2</sup>.

### Further applications

- Road construction
- Testing of pavement bedding
- Quality assurance in canal construction
- Compaction monitoring in pipe trenches and cable ducts
- Foundation backfill
- Railway construction

The Light Drop-Weight Tester being easy to handle and use is particularly suited for intra-company monitoring.

### Advantages over the plate pressure tester

- Minimum time needed, while individual measurements are immediately evaluated
- Testing practical in locations otherwise not readily accessible
- Low instrument weight
- No vehicle required for loading

## Information for Users

This instruction manual was prepared such that users can easily become familiar with the "Light Drop-Weight Tester – LFG", abbreviated herein-after as "LFG", and make use of the tester for intended applications.

Users should read this instruction manual and the safety section prior to using the LFG.

## Symbols Used

Warnings and instructions are highlighted as described below:



**This symbol is used in conjunction with related text to draw user's attention to hazards and risks which may cause failure of tester components or adversely affect operating procedures.**



**This symbol and the related text identify technical requirements and provide additional information to be taken into account by the operator.**

## Safety

### Legal terms of reference

The Light Drop-Weight Tester complies with the current state of the art and all applicable safety regulations.

Construction and function of the LFG meet the requirements laid down in "Engineering Code for soil and rock testing in road construction TB BF – StB Part B 8.3 / Issue 2003".

The LFG meets the basic safety requirements laid down in the EU Directives for Harmonisation referenced in the CE Certificate of Conformity.

### Intended use

The Light Drop-Weight Tester is exclusively intended for determining the soil bearing capacity and the compaction quality of the soil.

Its intended use also includes:

- Compliance with the safety instructions and safety regulations contained in this operating manual;
- Compliance with the maintenance and servicing instructions contained in this operating manual.

Any other use or any use beyond this definition is not intended and may cause injury to people and damage to property.

### Technical terms of reference

To avoid damage to the unit and prevent accidents during transport the Light Drop-Weight Tester is provided with a shipping and handling lock which is fixed to the guide tube during transport.



**The LFG is equipped with a shipping & handling lock designed to preclude damage to the instrument and make sure that it can be safely transported and handled. This lock must be used to secure the drop-weight on the guide tube whilst the equipment is moved from job to job.**

The drop height determined for the drop-weight by calibration (➡calibration record) has been preset. Provision is made such that the drop height cannot, and must not, be altered by the user.

Engage the drop-weight in the release mechanism prior to any test. To release the drop-weight, just actuate the release mechanism.

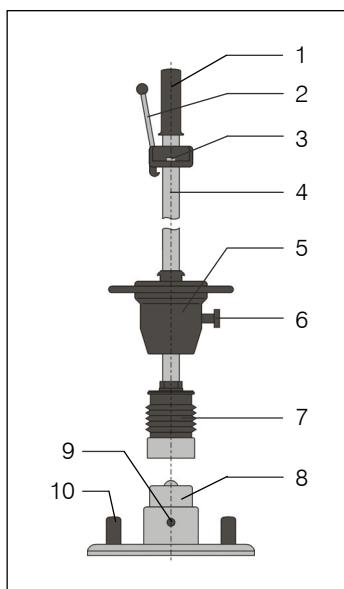


**Prior to any measurement, test the release mechanism to be sure it functions as necessary.  
Support the drop-weight by hand after every impact to avoid faulty measurements.**

## Construction of the Instrument

The LFG consists of the following assemblies:

- Loading assembly
- Load plate
- Electronic settlement measuring instrument



### Loading assembly and load plate

Construction of the loading mechanism and the load plate is described with reference to the figure below.

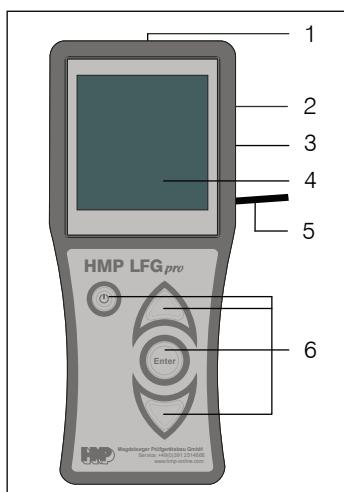
#### Loading mechanism

- |                       |   |
|-----------------------|---|
| 1 – Handle            | 5 – Drop-weight                                     |
| 2 – Release mechanism | 6 – Shipping & handling lock                        |
| 3 – Bubble level      | 7 – Resilient element with prestressed disc springs |
| 4 – Guide tube        |   |

#### Load plate

- |  |
|--|
| 8 – Cup with sensor                                |
| 9 – Sensor socket (to connect the measuring cable) |
| 10 – Load plate carrying handles                   |

Arranged under the cup (8) of the load plate is the sensor which serves to measure the settlement. The sensor leads are brought out through the sensor socket and connected to the settlement measuring instrument through a measuring cable.



### Electronic settlement measuring instrument

The battery-powered settlement measuring instrument is housed in a handheld enclosure.

#### Settlement measuring instrument

- |                            |
|----------------------------|
| 1 – USB port               |
| 2 – GPS port               |
| 3 – Printer port           |
| 4 – LCD graphic display    |
| 5 – Measuring cable outlet |
| 6 – Function keys          |



#### Carrying case

- |  |
|--|
| 1 – Carrying case                                      |
| 2 – Settlement measuring instrument                    |
| 3 – GPS Receiver ( <i>optional</i> )                   |
| 4 – Charger for AP1300 miniprinter ( <i>optional</i> ) |
| 5 – AP 1300 miniprinter ( <i>optional</i> )            |

## Operation of Electronic Settlement Measuring Instrument

The electronic settlement measuring instrument HMP LFGpro can be operated easily and intuitively by means of the function keys.

### Key functions

-  Switch on / off measuring instrument
-  Select forward / upward
-  Select backward / downward
-  Confirm selection / Start action

### Overview menu functions

<b>Measuring</b>	Taking measurement	
<b>Measured data</b>	Read/Print USB Delete Back	
<b>Settings</b>	Display	Date Time Language Contrast Illumination Back
	Device	Drop weight GPS Unit Graphics Calibr.date Back
	Printer	Print head Date/time Graphics Contact data Back
	Back	

By confirming the menu item »Back« you always come back to the previous menu.

## Device Varieties

HMP	LFG <sub>pro</sub> Basic unit	LFG <sub>pro</sub> + printer	LFG <sub>pro</sub> + Software	LFG <sub>pro</sub> + printer + Software
<b>Measuring instrument inclusively:</b>				
Determination and displaying of settlements and deformation modulus Evd	●	●	●	●
Displaying the settlement speed and path-speed-ratio (s/v)	●	●	●	●
<b>Large graphic display</b> (15 rows), Displaying the settlement curves, user-defined settings, simplest menu navigation, illumination >all information at a glance, more than 1000 tests with one battery load (4xR6)	●	●	●	●
<b>Menu navigation: many languages selectable</b> (German, English, Polish, Czech, Spanish, French, Russian, Lithuanian, Chinese, Serbian, Netherlandish. ...)	●	●	●	●
<b>Internal Memory</b>	● 1000 test series	● 1000 test series	● 1000 test series	● 1000 test series
<b>Signal tone when ready for measurement</b>	●	●	●	●
<b>USB interface + USB stick</b> with application movie, instruction manual, for comfortable data transfer	●	●	●	●
<b>GPS-connection</b> to localise the measuring points	○	○	○	○
<b>Thermal-Printer</b> to print out the measured data and the settlement curve (path/time-graph)	○	●	○	●
<b>Software</b> for comfortable evaluation of stored measured values by means of PC/Laptop	○	○	●	●

● standard ○ optional

## Function

The load plate is placed on the prepared area to be tested, and the loading mechanism is positioned on the load plate. Then, the connection is established to the settlement measuring instrument. When the drop-weight is released to drop onto the resilient element the loading mechanism generates a defined impact-like load, thus causing the overall settlement to be measured for the soil under the load plate.

After the measuring routine is started three measuring impacts are to be performed. After each impact, the measuring instrument displays the settlement in millimetres. Upon completion of a series of measurements, both the mean settlement and the dynamic modulus of resilience are determined and displayed on the screen.

Results may be printed via a miniprinter or a printer at the PC, if required (*only instruments with miniprinter or PC-software*).

## Specifications \*

### Mechanical loading mechanism

Total weight	15,0 kg
Weight of drop-weight	10,0 kg
Maximum impact force	7,07 kN
Duration of impact	17,0 ± 1,5 ms
Resilient element	package comprising prestressed disc springs

### Load plate

Diameter	300 mm
Plate thickness	20,0 mm
Weight	15,0 kg

### Electronic settlement measuring instrument

Power supply	4 of - R6 (no rechargeable battery)
Dimensions	216 mm x 90 mm x 40 mm
Settlement range measured	0,1 to 2,0 mm ± 0,02 mm
Range measured dynamic E-Modul	$E_{vd} < 225 \text{ MN/m}^2$
Temperature range	0 to 40 °C

\* The right is reserved to introduce modifications which will improve the equipment.

## Getting Ready for Measuring



**The procedure of preparation and performance of measurements is laid down in Engineering Code for soil and rock testing in road construction TB BF-StB Part B 8.3 "Dynamic Plate Pressure Test by Means of the Light Drop-Weight Tester".**

### Preparing the area to be tested

The load plate must be in full-area contact such that the impact force is optimally transmitted into the base and, thus, the maximum settlement amplitude under the entire area is determined.

- Select a plain area on the measuring site.
- Position the load plate while slightly turning and pushing.
- Fill hollow spaces under the load plate (as may be necessary) with loose medium sand.

### Connecting the settlement measuring instrument

- Connect the sensor housed underneath the cup (8) of the load plate, to the settlement measuring instrument.
  - Remove the cap from the sensor socket.
  - Install the plug of the measuring cable of the settlement measuring instrument in the sensor socket until it is locked in.



**The plug locked in the sensor socket can only be removed by pulling on the plug enclosure. Do not pull on the cable.  
Care must be exercised to ensure that the contacts of the plug and the sensor socket are not damaged.  
Use the cap provided on the cup to protect the sensor socket from dirt and moisture.**

### Positioning the loading mechanism

- Position the loading mechanism on the cup of the load plate.
  - ⇒ Provision is made to permit the loading mechanism to stand on the load plate in an unsupported configuration without the risk of overturning.

### Removing the shipping & handling lock

A shipping & handling lock (6) is provided to secure the drop-weight on the guide tube. This lock must be released prior to performing measurements.

- Withdraw mushroom head.
- Rotate mushroom head through 90 deg.

The arrow is vertical: either or

### Precompacting the test area

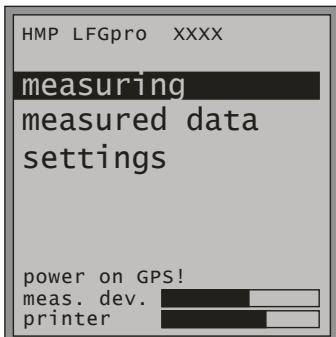
To achieve an optimal position of the load plate on the base precompact the test area under the load plate by three impacts.

- Move the drop-weight fully up on the guide tube with the right hand and engage it in the release mechanism.
- Use the bubble level (3) to align the guide tube until it is normal to the soil.
- Release the lever, the drop-weight falls onto the resilient element package.
- Support the bouncing drop-weight by hand and engage it in the release mechanism.

## Measuring Procedure



**The base settings of the electronic settlement measuring instrument comply with the ordered device type.  
Individual adjustments can be carried out in the “Settings” menu.**  
(► page 18)



- Press the  key to switch on the settlement measuring instrument..  
⇒ The main menu shown on the left is displayed on the LCD screen with type and number of device (xxxx), the individual menu items and the voltage state of the measuring instrument batteries.  
Optional appears a note regarding the GPS-receiver and/or state of charge of the printer accumulator.



**In case that the measuring instrument battery voltage falls below the required minimum voltage, an additional inscription “Change” appears.**



- Please confirm the „Measuring“ mode by pressing the  key.  
⇒ The menu shown on the left is displayed on the LCD-screen.  
⇒ At the same time the user information »Precompact triply, please!« appears.

If the soil was not precompacted yet, please follow the instructions in section »Precompacting the test area« (► page 8).

- Start the measuring process by pressing the  key.  
⇒ An acoustic signal is emitted and on the screen appears the request “Initiate measuring».



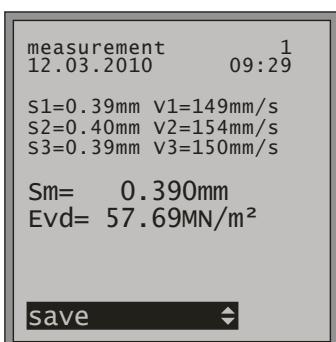
**The readiness for measurement only insists during displaying »Initiate measuring«.**

- Successively perform 3 impacts as follows.
- Engage the weight in the release mechanism.
- Use the bubble level to align the guide tube until it is in a vertical position to the load plate.
- Release the lever, the drop-weight drops down, support the bouncing drop-weight by hand.  
⇒ The values of settlement amplitudes S1, S2 and S3 are displayed on the screen.



**Failure to support the bouncing drop-weight may cause undesirable compaction of the test area and, hence, faulty measurements.**

The series of measurements is automatically completed after the third measurement. The menu on the left is displayed on the LCD-screen including the individual settlement amplitudes and deformation rate as well as the average settlement  $S_m$  and the calculated  $E_{vd}$ -value.



## Error Menus

The measuring instrument provides instructions to monitor the measuring procedure which pop up as an error report before measurement or when an individual measurement is aborted.

The following error reports might appear before the measurement:

Error report	Error cause
meas. dev. to plate connect	no connection between measuring instrument and load plate
short circuit in meas. cable	no correct connection between measuring instrument and load plate or measuring cable is defect

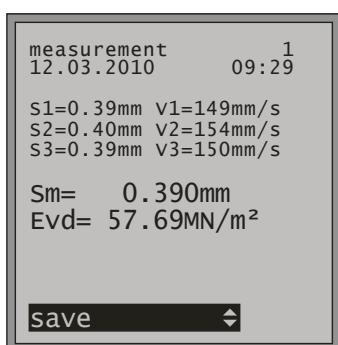
- Check / establish the connection.
- Restart the measuring process by pressing the  key, as soon as the connection is correct.

The following error reports might appear when the measurement is aborted:

Error report	Error cause
MW<0,1	The settlement amplitude is lower than 0.10 mm. Reason: The drop-weight was engaged »hard« or when measuring an strongly compacted underground.
No minimum	No pronounced minimum of the settlement amplitude was found during measurement.

- In either case, restart the measuring procedure by pressing the  key.

## Store, Print and Display Current Measured Data



Upon completion of one test series the current measured data can be stored or rejected. Furthermore there is also the possibility to print the current test series (*only devices with printer*) as well as to display the curve data and GPS-data (*only if a GPS-receiver is connected*).



**The GPS data can only be shown, when the items GPS and Graphics (displaying curve) were activated in the Settings / Device menu.**



**Before using the AP1300 Miniprinter please read the instruction manual (⇒ page 14-16). And follow the given instructions regarding putting it into operation and handling.**

By pressing the  $\triangle \nabla$  keys the following functions can be chosen (depending on the device settings):

- Save: Store the current test series under the displayed test series number
- Delete: Delete the current test series and return to main menu
- Print: Print out the current test series
- Curve data: Displaying the settlement curves and path/speed ratio s/v
- GPS-data: Displaying the GPS-position
- Settlement data: Displaying the individual settlement amplitudes and deformation rate as well as the average settlement  $S_m$  and the calculated  $E_{vd}$ -value
- Back: Return to main menu

The function »Delete« is only available before storing and the function »Back« only after storing.



**As soon as the message „Memory full!“ appears on the LCD display, storage space in the measuring instrument has to be created by transferring the stored series of measurements to the USB-Stick or the PC (► page 12) and subsequent deletion (► page 13).**



**It is recommended to transfer the test series and measurement results stored in the measuring instrument regularly onto the provided USB-Stick or to the PC (► page 12) and to delete afterwards the data in the measuring instrument (► page 13). In this way the transference time will be shortened and multiple data transfer avoided.**

## Completing the Test

- Press the  $\odot$  key to switch off the settlement measuring instrument.
- Disconnect the cable establishing connection between the settlement measuring instrument and the sensor on the load plate.
  - Remove the plug from the socket by pulling on the plug enclosure.
- Replace the cap on the sensor socket.
- Lock the drop-weight by means of the shipping & handling lock.
  - Withdraw mushroom head.
  - Rotate mushroom head through 90 deg.
  - At the same time, rotate the drop-weight in the lowermost position until the pin engages the hole in the guide tube.

The arrow is horizontal: either or



**The LFG may be relocated not until after the drop-weight is locked by means of the shipping & handling lock.**



## Read / Print the Stored Measured Data

The in the database stored test series and -results can be displayed via menu item »Read/Print« on the LCD-screen and printed out if required.



**Before using the AP1300 Miniprinter please read the instruction manual (→ page 14-16). And follow the given instructions regarding putting into operation and handling.**

- Choose and confirm the desired test series.  
⇒ The values of the chosen test series are displayed on the LCD-screen.

By pressing the  $\triangle \nabla$  keys, the following functions can be used (depending on the device settings):

- Print: Printing the current test series
- Curve data: Displaying the settlement curves and path/speed ratio s/v
- GPS data: Displaying the GPS position
- Settlement data: Displaying the individual settlement amplitudes and deformation rate as well as the average settlement  $S_m$  and the calculated  $E_{vd}$ -value
- Back: Return to the previous menu



**The GPS data can only be shown, when the items GPS and Graphics (displaying curve) were activated in the Settings / Device menu.**



## Transfer the Stored Measured Data

The in the database stored test series and -results can be transferred via menu item »USB« to the supplied USB stick or to PC.

### Data transfer measuring instrument → USB stick

- Connect the USB stick to the measuring instrument.
- Choose transfer mode »Device → USB stick« and confirm by pressing    
⇒ On the LCD display appears the inquiry „USB stick connected?“
- Confirm this inquiry by pressing the  key.  
⇒ The data are being copied to the USB stick.  
⇒ After completion of data transfer the measuring instrument switches off automatically.

To transfer the data from the USB stick to the PC see »Protocol software for the Light Drop-Weight Tester HMP LFGpro«.





## Data transfer measuring instrument → PC

- Connect measuring instrument and PC via the supplied USB cable.
- Choose transfer mode »Device → PC« and confirm by pressing **Enter**.  
⇒ On the LCD display appears the inquiry „PC connected?“
- Confirm the inquiry by pressing the **Enter** key.  
⇒ The measuring instrument works now just like removable media.
- After completion of data transfer to PC remove the removable media and switch off the measuring instrument.

To transfer data from measuring instrument to PC see »Protocol software for the Light Drop-Weight Tester HMP LFGpro«.



## Delete Measuring Results

The test series and –results stored in data base can be deleted via menu item »Delete«.

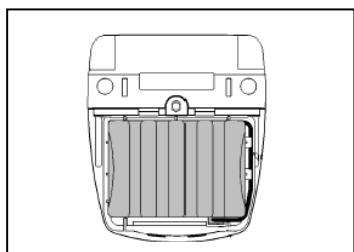
- Confirm menu item »Delete« by pressing **Enter** key.  
⇒ On the LCD screen is displayed the choice »Delete all measurements« resp. »not delete«.
- Confirm »Delete all measurements« by pressing the **Enter** key.  
⇒ All measurements will be deleted.



**Stored series cannot be deleted individually.**

## AP1300 Miniprinter

Included in the Light Drop-Weight Tester scope of supply is an AP1300 miniprinter (*optional*).



### Power supply

The printer can be operated independent of a power supply unit, and is powered by a 1.8 Ah NiMH power pack housed in the printer. Thus, the printer can be carried from job to job.

### Safety



- The NiMH power pack is provided with an internal fuse unit. However, a short-circuit may occur when the NiMH power pack gets into contact with metallic items.
- The power pack must not be opened; otherwise it may leak out or a short-circuit may occur.
- Before you remove or replace the power pack, disconnect it from the external power pack charger.

The power pack can be charged by means of the supplied power pack charger. The battery charging device can be connected with a car-battery 12–24V or by means of an AC-adapter to mains 100–240V / 50–60Hz. The AC-adapter is included in the delivery contents and is placed in the case together with the charger beneath the measuring instrument cables.

The AP1300 printer is shipped with a connected and fully loaded power pack.

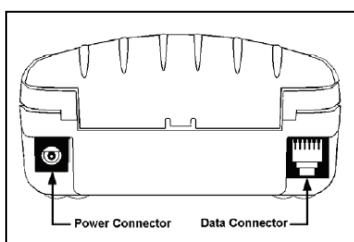


- When the printer is used for the first time after a lengthy period or has been standing idle for a lengthy period, recharge the power pack prior to use.
- In the event of malfunction the printer may only be opened by authorised personnel.

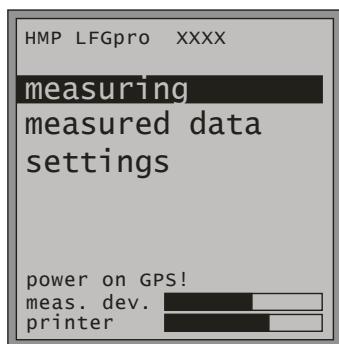
### Charging of power pack



- Use the power pack charger only indoors. Disconnect the device from the mains if it is not used. Do not operate the device in case of damage to the housing or the mains plug.
- Only charge nickel/metal hydride power packs; its use for charging other batteries may involve an explosion hazard.
- Do not open the power pack charger.



- Connect the power pack charger to the "Power Supply" connection of the printer.
- Connect the power pack charger to the mains supply.
- Disconnect the power pack charger from the mains supply when charging of power pack has been finished.



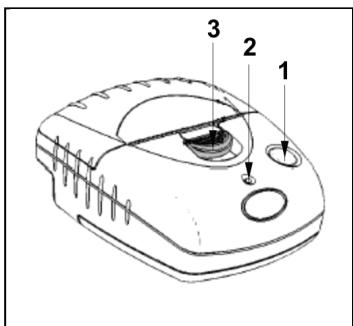
## State of charge of the printer

The state of charge of the printer is displayed in the lower area of the LCD-screen after switching on the measuring instrument.



**In case that the accu packs of the printer falls below the required minimum voltage, the request »Load printer« is displayed.**

## Front panel of printer



1 – Paper feed

Single-line paper feed:

- Press the key for a short interval, and release.

Multi-line paper feed:

- Hold down this key until the desired length of paper is reached.

2 – LED

Signals READY

LED off:

- The printer is in the power-saving mode.
- Power pack is discharged.
- Charging of power pack has been finished.

Green LED (steady):

- Printer is active.

Green flashing LED:

- Paper out.

Green – orange flashing LED:

- Power pack is charged (trickle charging).

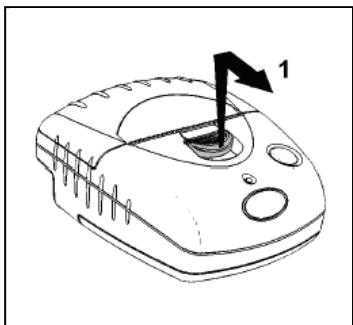
Orange flashing LED:

- Power pack is charged (fast charging).

Red – green flashing LED:

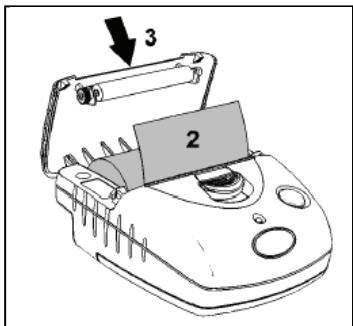
- Power pack voltage is too low.

3 – Paper compartment opener



### Insert paper roll

- Push the paper compartment opener to the front until the printer lid opens (1).
- Unwind a few centimetres of the new roll and load the paper roll into the compartment such that the paper will unwind from below (2).
- Close the printer lid (3).
- Press the paper feed key to check the correct paper movement.
- Rapidly tear off excessive paper using the cutting edge.



The AP1300 miniprinter is provided with sensors to detect lacking paper or opened paper compartment. A sensor activated, the printer switches to the storage mode; all data transmitted to the printer are preserved. Printing is continued immediately as soon as the defect has been removed.



**It is recommendable to use original paper role for thermo printer only.**

## Malfunction

Printer fails to start printing:

- Connection correct? Check connections.
- Has the printer automatically switched on and is the LED on?
- Is the power pack discharged? Charge the printer before use.

## GPS Receiver

The Light Drop-Weight Tester HMP LFGpro is optionally equipped with the external highly sensitive GPS-receiver "e Trex H" of the market leader GARMIN to determine the measuring position.

The co-ordinates are captured fast and exactly, because of newest technology, are transferred to the measuring instrument HMP LFGpro, are associated to the corresponding test and saved in the device.

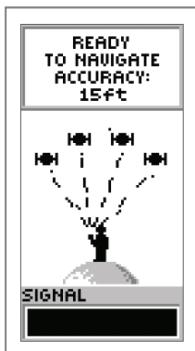


Figure 1

 **Detailed application information about the GPS-Receiver can be found in the attached instruction manual of the manufacturer.**

 **Basis for the determination of the measuring position with the GPS-Receiver is a measuring location, where this device has free reception.**

### Should the GPS-receiver be used, is to be proceeded as follows:

- Switch on the GPS-receiver by pressing the PWR-key.  
⇒ Initialization and determination of the position (lasts at least 1 minute).
- Wait, until the satellites are found and the navigation readiness is established (figure 1).
- Switch on the settlement measuring instrument with the  key.
- If the GPS status is not displayed, the GPS function can be activated in the menu »settings« under menu item »device« ().  
⇒ At the bottom of the display the GPS status appears.
- Conduct the measurement corresponding to instruction manual.

After confirming the hint »Please precompact three times«, the from the GPS receiver to the measuring instrument submitted co-ordinates are associated to the series of measurement and automatically saved with when storing the measuring results.

When printing out the measuring results via thermal printer, the position co-ordinates are automatically added.

The measuring results and corresponding co-ordinates can be printed out immediately at the site or can be transferred to the PC for subsequent processing.

The graphic representation via Google Earth is for free! Former measuring points can be quite easy localized by entering the co-ordinates into the GPS-Receiver.

The GPS-receiver is supplied separately with power and has an operation period of approx. 17 hours

If the GPS-receiver is not being used, prior to measurement the GPS function of the measuring instrument has to be deactivated.



**If in the measuring instrument the GPS function is activated and the GPS receiver is not connected or not ready, the note „No GPS-Position“ appears. Now the measuring process can be aborted or continued without the acquisition of GPS-data. The position coordinates will each be registered with “0”.**

## Combined Drop-Weight Tester HMP LFGpro / HMP MFGpro

### Instructions for Use:



**To receive correct measuring results, prior to measurement the to be used loading mechanism (drop weight 10 or 15 kg) has to be chosen.**



- Switch on the settlement measuring instrument with the  key.
- In the menu Settings under menu item » Device « the to be used drop weight (10 or 15 kg) has to be selected and confirmed.  
⇒ After returning to the main menu in the first row of the display appears the corresponding device configuration LFG or MFG.



**The configuration LFG has to be used for a loading mechanism with the 10 kg drop weight, the configuration MFG for a loading mechanism with the 15 kg drop weight.**

If the current set measuring device configuration equals the used loading mechanism, the measurement can be performed in accordance with this instruction manual.

After finishing the measurement series the dynamic deformation modulus  $E_{vd}$  is calculated automatically. Depending on the measuring device configuration the following formula are being used:

$$\text{LFG - drop weight 10 kg: } E_{vd} = 22,5/S_m$$

$$\text{MFG - drop weight 15 kg: } E_{vd} = 33,75/ S_m \text{ (1,5-times load)}$$

When printing out the measuring results via miniprinter the used device configuration appears in the protocol head. If the data are transferred to the PC the allocation of the individual measurement series regarding the used device configuration still remain. The device configuration also appears in the protocol head.



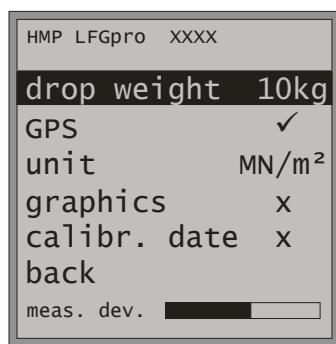
**The in the protocol head appearing device configuration LFG or MFG (10 kg/15 kg) depends on the first to be printed out measurement series. That's why it has to be considered, that measurement series, which were created with different device configurations, are not being printed out under one protocol head. This also applies to protocols, which were created by means of the PC-Software.**



## Display

Under the menu item »Display« the following settings can be carried out.

- █ Date set date
- █ Time set time
- █ Language choose language
- █ Contrast set contrast display
- █ Illumination set backlight display
- █ Back Return to previous menu



## Device

Under the menu item »Device« the following settings can be carried out for device configuration:

- █ Drop Weight (10 kg / 15kg) set configuration of loading mechanism
- █ GPS (✓ / x) activate / deactivate GPS
- █ Unit (MN/m<sup>2</sup> / MPa) set unit
- █ Graphics (✓ / x) show / don't show curve
- █ Calibr. date (✓ / x) show / don't show calibration date on startup screen
- █ Back Return to previous menu



## Printer

Under the menu item »Printer« the following settings can be carried out for printer configuration:

- █ Print head (✓ / x) Print head »✓« means, that always on every printout the head with information regarding measuring point will be printed out.  
Print head »x« means, that the first printout is with head, all others without. This setting is paper-saving and is used f. e. to print out an inspection lot.
- █ Date / Time (✓ / x) print out date / time
- █ Graphics (✓ / x) print out curve
- █ Contact data (✓ / x) print out company data (*optional*)
- █ Back Return to previous menu

## Contact data

In particular, these are the company details of the device owner, which can optionally be printed out in the protocol head.

The company details are not programmed by default. This requires a file with the desired data, which could be provided on request and would have to be installed on the electronic settlement measuring instrument.

## Cleaning

Care must be exercised when measuring to ensure there is no higher-than-normal dirt induced friction between the drop-weight and the guide tube; otherwise, incorrect data will be experienced.

- Thoroughly clean the LFG after every use.
- Wipe the guide tube with soft cloth slightly soaked in oil.
- Then, move the drop-weight up and down on the guide tube.



**Do not use grease to clean the guide tube.**

## Calibrating

**The company of HMP is an authorised testing institution and calibration laboratory within the meaning of "Engineering Code for soil and rock testing in road construction TB BF – StB Part B 8.3 / Issue 2003".**

The loading mechanism and the settlement measuring instrument of the LFG were calibrated prior to shipment ex works.

Calibration ensures both the function of the equipment and compliance with the specifications for the loading mechanism and for the settlement measuring instrument.



**Re-calibration is required at least annually.  
Also, re-calibration is essential after any repair of the LFG.**

The company of HMP has calibrated (DKD-supervised) instrumentation used to conduct force and distance calibrations. In addition, repairs necessary may be carried out.

The user should check the height of fall indicated in the calibration record, at intervals of three months.

## Hotline

HMP Magdeburger Prüfgerätebau GmbH  
Bülstringer Straße 6  
D-39126 Magdeburg  
Germany

Tel.: +49 (3 91) 2 51 46 66  
+49 (3 91) 2 51 46 67  
Fax: +49 (3 91) 2 51 46 68  
E-mail: [info@hmp-online.de](mailto:info@hmp-online.de)  
<http://www.hmp-online.com>

# Bundesanstalt für Straßenwesen

## Abteilung Straßenbautechnik



### Bescheinigung

#### über die privatrechtliche Anerkennung von Kalibrierstellen für das Leichte Fallgewichtsgerät nach TP BF-StB Teil B 8.3

Bezeichnung der Kalibrierstelle: HMP Magdeburger Prüfgerätebau GmbH

Anschrift der Kalibrierstelle: Bülstringer Straße 6  
39126 Magdeburg

Telefon: 0391 / 251 46 66

Leiter der Kalibrierstelle: Dipl.-Ing. Leue

Die Anerkennung gilt für die Kalibrierung von Leichten Fallgewichtsgeräten nach den TP BF-StB Teil B 8.3. Sie erfolgt auf der Grundlage der Richtlinien für die Anerkennung von Kalibrierstellen nach TP BF-StB Teil B 8.3 für das Leichte Fallgewichtsgerät vom 20. April 2004.

Die Anerkennung ist unbefristet gültig. Sie kann zurückgenommen werden, wenn die Anerkennungsvoraussetzungen nicht mehr erfüllt werden.

Registriernummer: 04 323 - HMP

Bergisch Gladbach, 16. August 2004

Im Auftrag

(LRDir Dr.-Ing. W. Schulte)  
Bundesanstalt für Straßenwesen



(RDir Dipl.-Ing. R. Hillmann)  
Leiter des Referates Erdbau, Mineralstoffe

(siehe Rückseite)



# EU Certificate of Conformity

## within the meaning of the EU Directives

- For harmonisation of the member's regulations for electromagnetic compatibility 89/336/EWG
- For harmonisation of the member's regulations for machinery 89/392/EWG

## The »Lightweight Drop-Weight Tester«

Make: HMP  
Type: LFG und LFG-SD  
Serial No.: ab Nr. 0800  
Year manufactured: ab 1998

was developed, designed and manufactured in compliance with the above-mentioned EU Directives under sole responsibility of



**Magdeburger  
Prüfgerätebau GmbH**

Bülstringer Straße 6  
D-39126 Magdeburg

Tel.: +49 (0391) 251 46 66/67  
Fax: +49 (0391) 251 46 68

## The following harmonised standards have been applied:

- EN 50 065-1
- EN 50 081-1
- EN 50 082-1
- EN 55 011
- EN 55 013
- EN 55 014
- EN 55 020
- EN 55 022
- EN 61 000
- DIN EN 292/T1
- DIN EN 292/T2
- DIN EN 614/T1
- DIN EN 894-1
- DIN EN 894-2
- DIN EN 1050
- DIN EN 60 204/T 1
- DIN EN ISO 9241-10

## The following national standards, directives and specifications have been applied:

- DIN 8418
- DIN 18 134
- DIN 31 000
- DIN 66 055

A complete set of Technical Documentation is available. The Instruction Manual associated with the equipment is available:

- in the original version
- in the language customary in user's country English

Magdeburg  
Place

08.01.1998  
Date

Hennings, Managing Director  
Undersigned and Position

Signature