



## EC Declaration of Conformity

In accordance with EC Machinery Directive 2006/42/EC, Annex II, part 1, A

We declare herewith that the below-mentioned machine, with regard to its design and construction and to the model we have released onto the market, complies with the basic health and safety requirements as set out in the EC Machinery Directive. This declaration shall become invalid if the machine is used or adapted in any manner whatsoever without our consent.

Manufacturer: **infraTest Prüftechnik GmbH, Brackenheim**  
Machine Description: 10-2350 Single-Gauge Plate Load Tester 100 kN  
Machine No.: .....

### Applicable EC Directives:

- EC Machinery Directive (2006/42/EC)

### Applied Harmonized Standards

- EN 12100 - Part 1 and 2 (Machine Safety)

Responsible for the documentation: Dr. J.-M. Nussbaum, phone +49 (0)7135 9500-29.

### Important!

Only those materials as described in the instruction manual may be used for the tests. The machine may only be used by qualified personnel with due regard to the instructions as set out in the instruction manual. Training on the operation of this machinery is available on request.

Brackenheim, 7. September 2012

**infraTest**  
Prüftechnik GmbH

E. Rennstich  
Service Manager

# **Translation of the Original Operating Instructions**

**10-2350**

**Single-Gauge Plate Load Tester 100 kN**

infraTest Prüftechnik GmbH  
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## 1. Intended use

The device conforming to DIN 18134 (in conjunction with an appropriate measuring device) is used for measuring the bearing capacity of subsoil.

## 2. Technical data, setting up and connection

Set comprising:

- Single-gauge measuring bridge made of aluminum with extendible probe arm and precision dial gauge (electronic load transducer when using optional available electronic load and displacement measuring unit).
- Bearing plate diameter: 300 mm
- Set of extensions made of aluminum, insertable
- Top ball joint with magnetic head
- Hydraulic system comprising pump, cylinder, connecting hose and pressure gauge with scale 0 - 250 bar and 0 - 0.6 MN/m<sup>2</sup>

## 3. Description of the machine and of the machine functions

### Hydraulic system

The hand pump F8000089.008 that is part of the hydraulic system has been designed as a two-stage pump for a max. working pressure of 800 bar. The maximum pressure is set at the factory to 500 bar. When this pressure is reached, the oil is sprayed into the reservoir via a pressure-relief valve.

**N.B.: Do not exceed the maximum pressure of the pressure gauge - 250 bar at pressure gauge for a plate diameter of 300 mm / Never load the 100 kN pressure gauge above 250 bar.**

Automatic switchover from low to high pressure takes place at 20 bar. This means that at this pressure, the pump switches over from using its large piston to using its small one. This reduces the delivery rate from 20 cm<sup>3</sup> to 1.6 cm<sup>3</sup> per stroke. The oil from the low-pressure section flows back to the reservoir unpressurized and exerts lower forces on the control lever. The hand pump is supplied including mineral-oil-based hydraulic fluid of viscosity class 10 per DIN 51524 Part 1. Capacity: 1.3 l. **Never use any other grade of oil!**

The hand pump is equipped with a pressure gauge and 2-m high-pressure hose with plug-in coupling. The pump is connected to the hydraulic piston by means of the plug-in coupling. This coupling is connected to the hydraulic cylinder by pulling back the coupling ring at the green marking and then locked by rotating the ring to red.

To operate the system, open the screw cap on the oil tank of the pump approx. 1 revolution, so that air can be drawn in when pumping.

The hydraulic piston 10-2350E85/90 up to max. 100 kN has an area of 19.63 cm<sup>2</sup>.

The hydraulic system has been bled at the factory and is ready for operation once the above instructions have been followed.

## 4. Safety instructions

The hydraulic system must not be modified in any way. The maximum pressure set at the factory must not be changed under any circumstances. The system must only be operated by trained personnel.

Please ensure that the system is kept absolutely clean, because even the smallest amount of dirt particles can contaminate the valves and consequently disrupt availability of the system.

## 5. Description of the protective equipment

None.

## 6. Start-up and conducting the test

### Startup

The testing point is set up perfectly flat in accordance with DIN 18134. The bearing plate is then placed on the testing point with the opening of the measuring tunnel pointing toward the probe of the measuring bridge. Extend the measuring bridge, if possible as far as it will go (according to DIN 18134, the minimum clearance from the center of the load plate to the center of the measuring-bridge supporting foot is 1.25 m for 300 mm dia. loading plate). Insert the measuring probe into the measuring tunnel and guide it into the center (up to the shoulder on the probe). Install the measuring bridge horizontally and position the dial gauge on it. You can adjust the measuring travel of the dial gauge by sliding it along the rod and by means of the knurled thumbscrew. Make sure that the measuring probe makes contact in the measuring tunnel and that the dial gauge has an adequate travel for the test. Then position the hydraulic cylinder on the measuring tunnel and extend it up to the loading-vehicle frame using extension pieces and the top ball joint. The hydraulic piston or the load cell in the version equipped with digital load measurement is fitted at the bottom with a spherical counterpart. **Attention: The ball joint with magnet may only be placed on a perfectly flat surface that is designated for this purpose by the vehicle manufacturer! Please see that the bearing plate of the cylinders and the extensions are vertically adjusted to each other. If the adjustment is insufficient the whole lifting system might bend or slip off.**

For transport the crank of the hydraulic pump must be locked, otherwise the sealing may be damaged. Lock the tank ventilation after the end of the test in order to avoid oil loss.

### Conducting the test

The test is conducted in accordance with DIN 18134.

As an option loading plates with 600 mm dia. (others on request) are available. For these plates special manometers with the necessary scales (10-2350E80.43) are available. For field CBR-tests with the plate bearing set an additional test set (10-2070) is available. The manometer scale indicating bar has to be used and calculated on the area of the CBR-piston. On special request, scales with direct load values already calculated for the area of the CBR piston are available.

## 7. Maintenance

Make sure that the probe arm for the dial gauge runs freely in the linear guide, otherwise the results of the settlement measurement may be distorted. If necessary, clean the gauge and guide with a dry cloth. Apart from that, the bearings used are maintenance-free. You can set the amount of play of the probe arm in the guide after opening the union nuts top and bottom and adjusting the front pressure roller by means of setscrews. Make absolutely sure that the hydraulic system is clean. Dirt on the plug-in coupling or in the oil reservoir will lead to malfunctions.

Check the hydraulic hose regularly for damages and replace it every 5-6 years at the latest.

#### Possible sources of faults in the hydraulic system

*Pump level does not remain positioned at the top or bottom*

Remedial actions:

- Open the screw cap on the oil filler neck.
- Top up with oil if necessary (capacity: 1.3 l).
- Valves have become stuck after a long period at rest.
- Tap the pump lightly; if necessary send it in for repair.
- Valves are dirty and therefore leaking. Open the drain valve and pump through oil a number of times using the pump lever. If this does not help, send the system in for repair.
- **To fulfill the requirements of DIN 18134 issue 9/01 we recommend a calibration in factory once a year.**

## **8. Emissions data**

Oil loss may cause contamination of the ground as well as the risk of slipping.

## **9. Precautionary measures by the operator**

Comply with all regulations relating to the handling of hydraulic oils.

Attention: The loaded hydraulic system and the lifted load vehicle have a high energy which may in case of malfunctions and incorrect utilisation injure the user or other persons near the device! Damages to the measuring bridge, the lifting system, the bearing plate and the load vehicle cannot be excluded.

**Please do not hesitate to call us or our after-sales service personnel if you have any questions.**

10-2350E06/0911