

**PFEUFFER**  
Mess- und Prüfgeräte

# Operating instructions

Moisture meter for cereales, ground products,  
oil seeds and legumes:

**HOH-EXPRESS**  
**HE 50**



Stand 29.07.98 ip, englisch\_2.p65

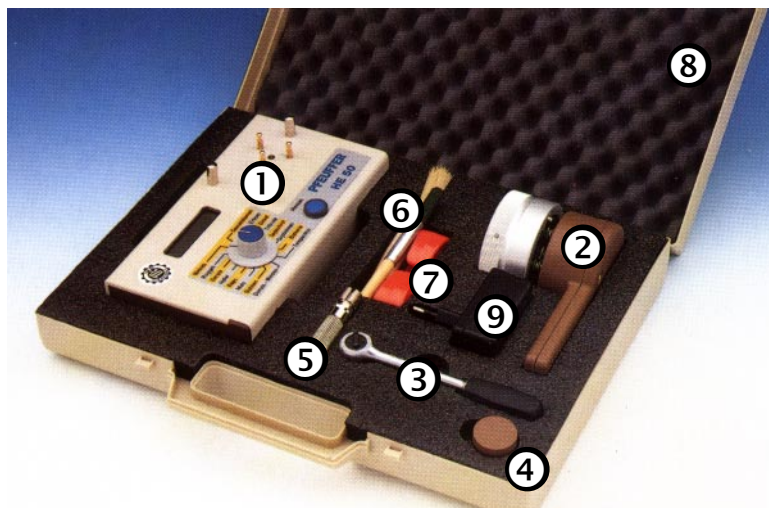


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### Important Notice:

**No warrantee is taken upon for defects occuring due to disregards of the operating instructions !**



## **Introduction**

Without exaggeration, the HE 50 can be classified as the most universal and precise moisture meter for agriculture. This has been confirmed by tests in Germany and other countries.

It can be used to determine the moisture content of cereals, ground products, oil seeds and legumes. The calibration for the products paddy, sunflower seeds, soybeans and sorghum can be replaced by calibrations for other products such as grass seeds, linseed etc.

While closing the measurement cell the sample to be measured is grinded, homogeneously mixed and pressed together inside the measuring cell which is applied for a patent. In addition the HE 50 gives the possibility to measure the temperature. Using a temperature gauge available as optional you can check the stock temperature which is very important for quality. Not without good reason more than 8.000 farmers use the HE 50 on the field, during drying and when storing.

## **Standard Accessories and Options**

The HE 50 consists of, a rugged plastic housing which contains an electronic measuring device ① with the latest microprocessor technology; a measuring cell with integral temperature sensor, and a ratchet ③ handle to screw down the measuring cell. In addition, a 9 ml. filling measure ④, brushes for cleaning ⑥ and a tool for cleaning the threads ⑤ are included in the standard HE 50 set. When the measuring cell is screwed together the sample to be tested is crushed, homogeneously blended and compressed, all with the one action.

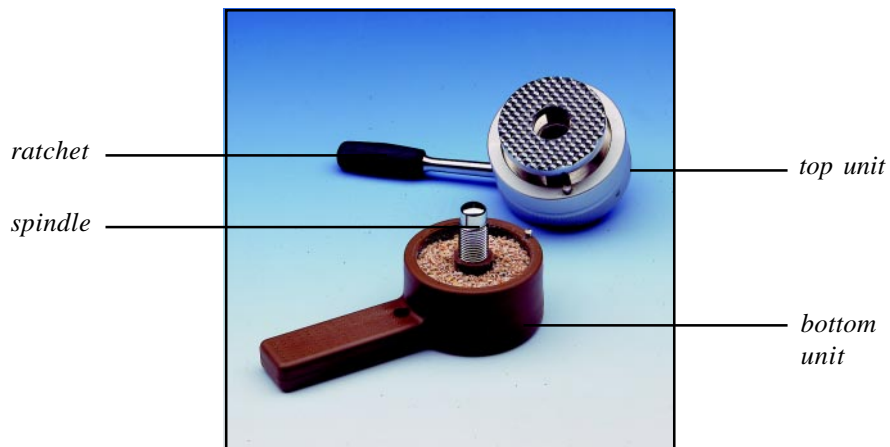
The following accessories are available but not included in the basic price: plastic carry case ⑧, funnel, temperature probe, voltage accumulator and charger ⑨ and measuring cell for "floury" products.

## Filling the Measuring Cell and Grinding, e.g. with grain

The measuring cell is equipped with special ribbing which enables it to crush all products.

**Attention: When empty it should not be screwed in to the point where the grinding discs touch.**

**Foreign elements**, such as stones, straw, husks, weed seeds, green kernels or in the case of maize, stalks should be **removed** from the sample. Fill the 9 ml. filling measure **to the brim** with the **cleaned sample**.



Remove the top unit from the measuring cell by inserting the ratched handle into the top unit until it engages, setting the ratchet nipple to the right, and unscrewing the top unit.

**Empty** the contents of the filling measure **evenly** onto the bottom of the measuring cell and place the top unit on the cell. Set the ratchet nipple to the left and screw the top down until the stops meet (i.e. as far as it will go).

*Hint:* Tilt the measuring cell on its side and screw in the ratchet handle using small lifting movements.

**Place** the measuring cell **in the holder** with the handle pointing to the right. The bolts and the hole in the handle act as a guide.

### **Measuring procedure**

Select the **appropriate product** using the rotary switch, e.g. wheat. **Press the "measure" button.** This action switches on the HE 50 and starts the measurement process. On the display

**\*\*\* HE 50 \*\*\***

appears and shortly after, the product selected:

**wheat**

After about 5 seconds the result and the first two letters of the products are displayed:

**wh 14,5%**

If the rotary switch is moved to another product a new measurement will be taken immediately.

**Moist material must be removed from the measuring cell immediately after the measurement !**

After the reading is complete open the measuring cell, **removing the top** unit.

Use the small handbrush to clean the top of the measuring cell and the paint brushes to **clean** the bottom.

For moist and adhesive material remove the moulding cake

using the stiff paintbrush. Then grind a dry grain sample (approx. 14 % moisture) in the cell to remove any residual moisture, and clean the cell out again.

### **Automatic Temperature Correction**

The temperature correction is executed automatically. Reliable results are obtained at ambient temperatures between 10 C to 30 C. For best results the instrument and the sample to be tested have nearly the same temperature.

Warm cereal grains just taken from the drier should be measured after cooling down. Cold grain should be allowed to warm up to ambient temperature.

**Protect the HE 50 against direct sunshine and extreme temperatures exceeding 55 C.**

### **Very Moist Products, like e.g. Freshly Harvested Maize**

The measurement is similar to that described above, but for these products the filling measure is heaped with kernels before being emptied into the measuring cell (approx. 9 g). Then close the cell, open and empty. Refill the measure, again heaped with kernels, and empty evenly into the measuring cell. Start the measurement process. For moist products this procedure increases the measuring accuracy. Remember when changing from moist to dry samples to make a blank test using dry grain before doing the actual test.

### **Oleaginous Products, like Rapeseed and Sunflower seeds**

When testing rapeseed and sunflower seeds it is possible that the grinding discs will touch and

**range**

will appear in the display. The measurement should be repeated using a heaped measure for rape and two measuring cups filled to the brim for sunflower seeds.

### **Tough Products, like Beans and Peas**

For "tough" peas with moisture content between say 17 % and 20 %, only screw the measuring cell partway and then open it again. Repeat this two or three times and before screwing the cell right down.

### **Fine-granular products like meal, semolina, flour and grass**

For meal and semolina use one heaped filling measure in the measuring cell and for flour use two heaped measures. The grinding discs must not touch during the measurement. If they do touch "range" will be displayed.

The spindle must be cleaned after each measurement. A funnel is available as an optional extra to facilitate filling of the measurement cell.

### **Coarse grained special products like hazelnut, almonds, walnuts, pacane nuts**

Coarse grained products like e.g. hazelnut kernels have to be roughly chopped first using a knife or similar. Then fill two measures to the brim, put into the measuring cell and continue as for grain.

## Recommendation - Cleaning Advices

When the HE 50 is used to test oily products the threads of the measuring cell can become dirty. Then the cell can only be closed with increased effort.

To overcome this:

1. Clean the thread windings of the spindle using the handbrush.
2. Carefully screw the cleaning screw into the top part of the measuring cell. During this procedure the grinding disc should point downwards. Be careful not to damage the threads. After screwing it in and out several times the oily residues will fall out. The cell can now be easily closed again.

## Power Supply

Power is supplied by a single 9 volt battery, easily obtained, or by a 9 volt accumulator.

For checking the supply voltage the rotary switch has to be positioned to "battery". The display indicates:

**ba 9.0 V**

The battery voltage must exceed 7.2 V. If this or a lower value is reached, the HE 50 switches off automatically. A false measurement due to a too low battery is not possible. The display indicates:

**load acc.**

The old battery then has to be replaced by a new one or the accumulator has to be removed from the unit for recharging. This is done by opening the slide on the left hand side. It takes the

charger 14 hours to recharge a flat accumulator. The higher the charge remaining, the shorter the time required. The accumulator can't be overcharged.

More than 500 readings can be taken with one charge of accumulator or a new battery.

**Attention !**

**The 9 volt battery can not be recharged!**  
**It can happen a dangerous outflow of acid thereby!**

### **Temperature Measurement**

Next to the battery there is a socket for a plug. This is for connecting the temperature measurement probe. Insert the probe into the bulk goods, position rotary switch to "temperature" and press the measurement key. Once the temperature measuring process startet the probe shall not be moved. The display indicates:

**amb.-t.**

(ambient temperature) and the temperature

**20.0°C**

If this value remains constant for more than one minute, the unit already displays the temperature of the measured product and the measuring process can be interrupted by turning the rotary switch to "battery".

If the actual sensor value is not constant, the entire measuring time of approx. four minutes has to be kept. The end of the

measuring procedure is indicated by a 3-fold acoustic sign. The temperature value is indicated in the display. Due to the measuring time of approx. 4 minutes we recommend to utilize an accumulator.

### Error messages

<b>m-cell</b>	1. There is no measuring cell placed on the unit or it is faulty.
<b>range</b>	2. The product to be measured is too dry or moist. Please consider the individual remarks for the products.
<b>load acc.</b>	3. The measuring voltage is too low. The accumulator has to be recharged or a new battery must be used.
<b>t-sensor</b>	4. You have selected "temperature" and there is no temperature probe connected or the temperature sensor is faulty.

### Replacement Parts and Accessories

Please quote the part number on your order. This will facilitate us the work. Thank you.

	Part-No.
Filling measure	3112 0015*
Cleaning handbrush	3190 0050*
Cleaning paintbrush (soft bristles)	3190 0020*
Cleaning paintbrush (very hard bristles)	3190 0010*
Battery 9 volt	3254 0020
Accumulator (rechargeable) 9 volt	3254 0004
Charger for 9 volt-accumulator	3254 0005

Temperature probe 1m	2150 0110
Temperature probe 1,5m	2150 0120
Temperature probe 2m	2150 0130
Plastic carry case	3111 0215
Ratchet	5640 0050
Funnel	3110 0070
Corn cutter	2130 0110
Tool for cleaning the threads	3170 5070
Measuring cell complete	2150 0003
Measuring cell for floury products	2150 0020

\* = Minimum quantity delivered 3 units per article !

For any questions please contact us:



Pfeuffer GmbH  
 Mess- und Prüfgeräte  
 Flugplatzstraße 70  
 D-97318 Kitzingen

Phone +49-9321-9369-0  
 Fax +49-9321-9369-50  
 e-mail: [info@pfeuffer.com](mailto:info@pfeuffer.com)  
 WWW: <http://www.pfeuffer.com>

**Our delivery programme comprises the complete equipment for the quality control of grain:**

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 Seed Counter **CONTADOR**  
 Sample cleaners, Grain Tester, Laboratory Equipment.

**EC-Declaration of Conformity**  
as defined by EC directive electro-magnetical  
compatibility 89/336/EEC



We herewith declare that the instrument described below as well as the version put into circulation by us corresponds to the relevant elementary safety and health standards of the above mentioned EC directive because of its design.

In case of modification of the instrument not in coordination with us this declaration expires.

Designation of instrument: **Electronic Moisture Meter**  
Instrument type: **HOH-EXPRESS HE 50**  
Serial No.:

**Relevant EC directives:**

EC directive electro-magnetical compatibility 89/336/EEC


**Applied harmonized standards:**

DIN EN 50081-1 (VDE 0839, part 81-1),  
DIN EN 50082-1 (VDE 0839, part 82-1),  
DIN EN 60204-1 (VDE 0113, part 1),  
DIN EN 61010-1 (VDE 0411, part 1)

**Applied national standards:**

DIN 57106-1 (DIN VDE 0106, part 1),  
DIN 57106-100 (DIN VDE 0106, part 100)

This operation instructions belonging to the instrument has been submitted in English language.

  
(Klaus Pfeuffer, Managing Director)