
# *Wheat and Rice Flour MoistureTester PRg-930*

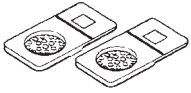
# Operating Manual

Thank you for purchasing our Wheat and Rice Flour Moisture Tester, PRg-930. This tester can measure the moisture of flour and grain by simple operation, but proper operation is necessary for accurate moisture measurement. Please read this operating manual carefully before use.

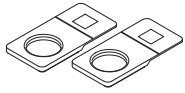
***Note: The pictures in this manual are examples and may differ from actual product.***

# Table of contents

## Contents of Package



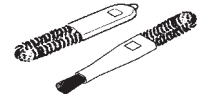
Sampling tray
for grain (2 pcs)



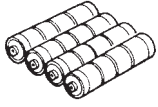
Sampling tray
for flour (2 pcs)

Metal plate
(3 pcs)

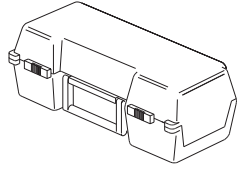
Spoon with
tweezers



Cleaning brush
(2 types)

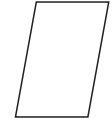


Battery
(AA size×4 pcs)

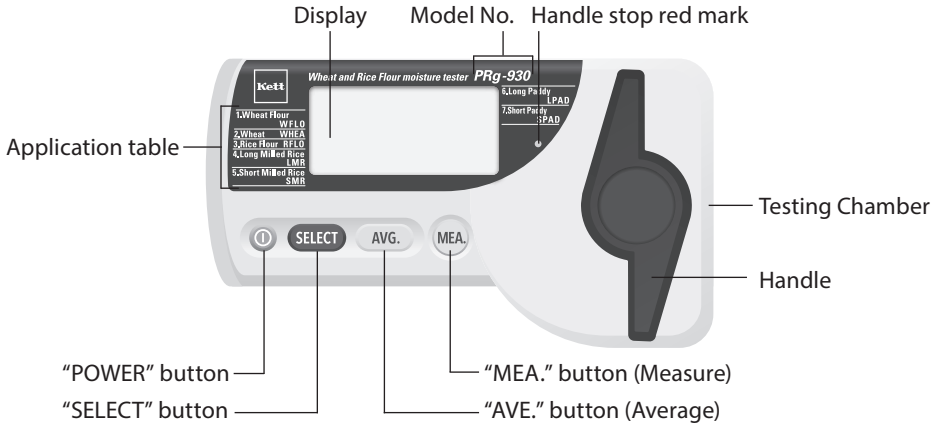


Carrying Case

Operating manual



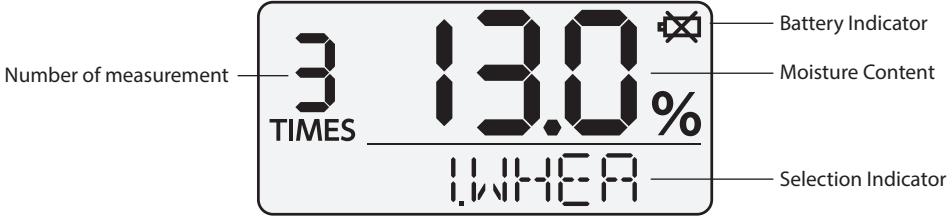
Inspection Certificate


Display
Model No.
Handle stop red mark
Application table
Testing Chamber
Handle
"POWER" button
"SELECT" button
"MEA." button (Measure)
"AVE." button (Average)
Kett
Wheat and Rice Flour moisture tester PRg-930
1.Wheat Flour WFLO
2.Wheat WHEA
3.Rice Flour RFLO
4.Long Milled Rice LMR
5.Short Milled Rice SMR
6.Long Paddy LPAD
7.Short Paddy SPAD
SELECT
AVG.
MEA.

## Description of Display

This tester adopts the auto power off function. The power of the tester is automatically turned off in approx.
5 minutes after turning on the power if no operation is performed.

Use of backlight in the display section allows users to see the display clearly even in the dark.



Meanings of special marks The display may show marks as follows:

| | | |
|---|---|---|
| Battery mark |  Caution | Battery is dead. Replace the batteries with new ones.<br>(displayed immediately after pressing the power switch and while using) |
| Over mark |  Caution | Displayed when the measured result exceeded the upper limit of the measurement range |
| Under mark |  Caution | Displayed when the measured result fell below the lower limit of the measurement range, or the contact between the test sample tray and the measuring unit of the main body was poor. |
| Error mark |  | Main unit temperature is too low -5°C or lower. |
| |  | Main unit temperature is too high 50°C or higher. |

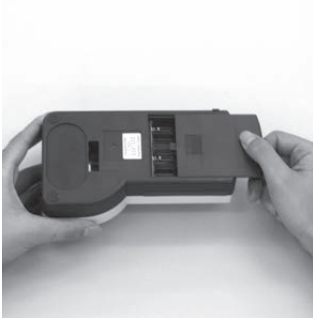
- ***When measurement is performed with the sample tray empty or the measuring unit is poorly insulated due to condensation, high humidity, contamination, etc., the over mark, under mark, or other meaningless numbers may be displayed. In such a case, clean the measuring unit and dry it well in a natural way.***

## How to Place Batteries

**1** Take out the main unit from the carrying case.

**2** Take out the batteries from under the battery holder.

**3** Open the battery box on the back side of the main unit, and place 4 batteries appropriately.

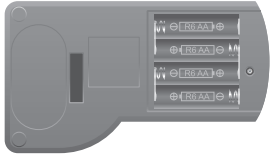


**Battery replacement**

When the battery is running out, the battery mark lights up the display. Replace all 4 batteries (AA) with new ones.

Those batteries are gradually discharging even when the tester is not used.
It is recommended to always use new batteries.

*Place batteries in the correct polarity*




This instrument is equipped with a temperature compensation circuit. However the test unit and samples are required to be thermally stabilized before measurement.

## Measurement

**1** Press the “POWER” button. All of the backlight, all characters on the display section, mark light up for 2 seconds, and then model number and software version number is displayed automatically. The backlight goes out, and the tester becomes a standby state for measuring.

<All display immediately after pressing the "POWER" button>


<Model number and software version number>

The backlight turns off and “Application”, “Times” “%” are displayed. It is ready for measurement.

<Ready for measurement>


**2** Press the "SELECT" button and repeat until the Selection Indicator and the abbreviation for name of application you wish to test appears.
The selected application is memorized even after turning off the power.

## Measurement

***Note: The measurement procedure vories depending on applications. See 12, page for Wheat, Long milled rice, Short milled rice, Long paddy, Short paddy.***

**3-A** Wheat flour, Rice flour:
Scoop wheat flour with the spoon with tweezers and use the grip of the cleaning brush to level off the rice flour.

Put wheat flour on the sampling tray and shake the tray slightly to flatten the flour.

Put the metal plate on the wheat flour and press it gently with your finger. Perform measurement with the metal disc put on.

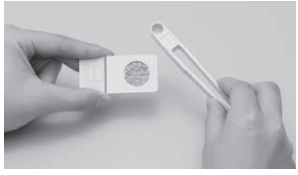
## Measurement

**3-B** Wheat, Long milled rice, Short milled rice, Long paddy, Short paddy:
Put the test sample evenly on the sample tray by just the amount that will be one layer.

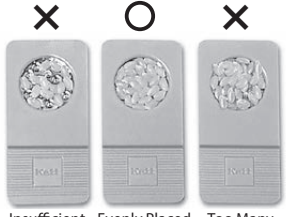
***Note:Both the amount of sample is too much or insufficient may cause a measurement error. Over more, too much sample may cause wear on the screw and damage the instrument.***

***Note: Sort out unripe or degenerated grains from the sample tray in order to avoid error.***

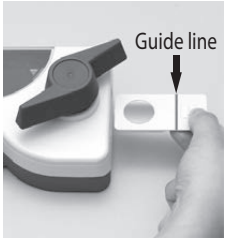
***Note: Metal plate is not used for whole grains.***

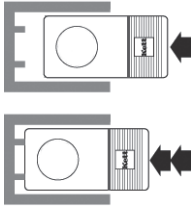


Evenly in one layer on the sample tray



**4** Rotate the handle counterclockwise to let the sample tray enter the testing chamber. Place the sample evenly in the sample tray, and insert it into the testing chamber until the guide line is hid.



▲ Designated position

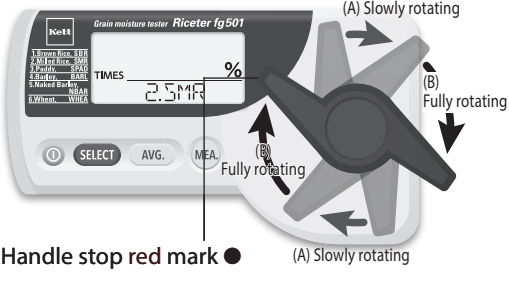
***Note: Failure to observe this may cause the tip of the handle to damage the plastic portion of the sample tray. Be sure to fully insert the tray.***

Proper placement

Incorrect placement

## Measurement

**5** Slowly rotate the handle clockwise. When the tip of the handle reaches the sample (A), and fully rotate the handle to the “handle stop red mark” holding the handle firmly (B).




**6** Press the "MEA." button, the decimal point blinks, the backlight lights up, the moisture content and measuring number are displayed thereafter. The backlight goes out after 4 seconds, but the moisture content remains being displayed.

**7** For continuous measurement, perform the next measurement while the last measured value is displayed. Replace the test sample, fully rotate the handle, and press the "MEA." button. The last measured value disappears and the new measured value is displayed. The measuring count also changes at the same time.

After a lapse of 5 minutes, the power is automatically turns off and all the displayed items are cleared.

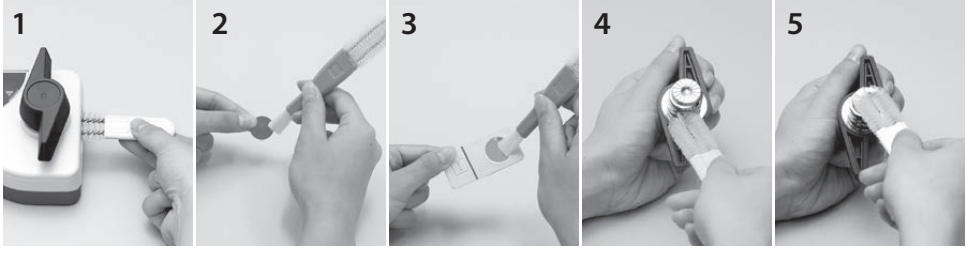
Pressing the "POWER" button while the display is in the on state allows users to turn off the power manually.

***Note: If the handle is over the red mark after fully rotating, handle or main unit may be damaged. Please inspect the unit at our official distributor.***

## Measurement

**8** Clean testing chamber inside, sampling tray, and metal plate after every measurement. (Pictures 1, 2, and 3) If the last test sample remains, proper measurement cannot be performed.

For continuous measurement, disconnect the handle and remove the attached sample and contamination from the tip of the handle and contact section sometimes. (Pictures 4 and 5)



Pressing the "AVE." button after several measurements can obtain the average value of the measured moisture contents. The average value calculated from the measured values of the measuring count 2 to 9 is displayed with the average characters and number of measurement times.

***Note1: To obtain the average value of moisture contents, press the "AVE." button within 5 minutes after measurement. After the last measured value disappears, the average calculation function does not work.***

***The initial state is restored in the following states:***

- ***When the power is turned off***
- ***When the "SELECT" button is pressed***
- ***When the "AVE." button is pressed***
- ***When the continuous measurement count exceeds 9***

***Note 2: AVE characters are displayed while an average value is displayed.***

## Storage

Observe the following instructions to keep moisture tester for a long period of time:

- ***Be sure to remove the batteries.***
- ***Clean every portion of the main body in a careful manner. Especially for the measuring unit, disconnect the handle and clean the inner contact section sufficiently.***
- ***Be sure to put the tester together with accessories in the carrying case and keep them in a cool place avoiding direct sunlight.***

*Thorough cleaning inside*

| No. | Applications | Abbreviation | Measurement range | Accuracy[*1] |
|---|---|---|---|---|
| 1 | Wheat flour | W F L O | 11.0-18.0% | 0.5% or less of SEC |
| 2 | Wheat | W H E A | 9.0-30.0% | |
| 3 | Rice flour | R F L O | 8.0-18.0% | |
| 4 | Long milled rice | L M R | 10.0-20.0% | |
| 5 | Short milled rice | S M R | 10.0-20.0% | |
| 6 | Long paddy | L P A D | 10.0-35.0% | |
| 7 | Short paddy | S P A D | 10.0-30.0% | |

[*1] Accuracy
- Compared to referne drying oven method with less than 20% range
- SEC : Satnadard Error of Calirbation curve

# Specifications

| | | |
|---|---|---|
| Measurement method | : | Electric resistance |
| Accuracy | : | Flour : 0.25% (SEC, 130°C 5g 2hrs method, Entire range)<br>Grain : 0.5% (SEC, 130°C 5g crushed 2hrs method, Under 20% range)<br>Environment without abnormal electromagnetic noise[*1] |
| Operating temperature | : | 0 to + 40 °C |
| Display | : | Digital LCD with backlight illuminator, Minimum display digit : 0.1% |
| Number of calibration curves | : | 7 |
| Temperature correction | : | Automatic temperature correction by thermistor |
| Automatic temperature correction | : | Unit and sample temperature correction is programmed<br>Note) Sample temperature correction is applicable less than 20% moisture range of sample |
| Power source | : | 1.5V (AA size) battery x 4 |
| Auto power off | : | 5 min. after nothing of operation |
| Power consumption | : | Max. 0.3W |

| | | |
|---|---|---|
| Dimensions and weight | : | 164 (W) x 94(D) x65 (H) mm, 0.45kg, approx./ Main unit only |
| Accessories | : | Sample tray for grain (2), Sample tray for flour (2), Metal plate (3), Spoon with tweezers (1), Cleaning brush (2 types), AA size Battery (4), Carrying case (1), Operating manual (1), Inspection certificate (1) |
| Options | : | Checker kit for Riceter |

[*1] It has been confirmed that the environmental error caused by electromagnetic noise is within 0.5% by radiated radio wave electromagnetic field immunity test (EN6100-4-3) at test levels 3V/m :80MHz ~ 1GHZ, 1V/m: 2.0 ~ 2.7GHz.

Notes

- Copying some or all of the contents of this user manual without prior written consent is strictly prohibited.
- The contents of this user manual may be changed at any time in the future without any prior notice.
- The appearance and/or representations of the products and parts depicted in this user manual may not appear exactly as their actual counterparts, but this does not affect their operation or functionality.
- This user manual was intended to be written as clearly and accurately as possible. However, if you are unclear about anything in this user manual or notice any missing information, please contact us directly.
- We cannot be held responsible for any actions or effects resulting from the execution of any operations outlined in this user manual.

Kett

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