



THE GLOBAL STANDARD  
FOR LIVESTOCK DATA

# ICAR Guidelines for calibration of the milk meters

**Manuflow 2**

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Network. Guidelines. Certification.

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## 1 Frequency of periodic checking at least once in 6 months. General

The testing procedure with water should be carried out with milk meters that are cleaned properly.

## 2 Reference value

The reference value (“test” value) of the Manuflow 2 milk meter is the value in the Service Program calculated by software in connection with calibration.

The “Test” value is the average amount of water in grams measured by the milk meter per each “dump” during water test.

This value is however not used during the test. A standard deviation of  $\pm 0.2$  kg between display-value and measured water passed through the meter is used. When proceeding to periodic checking, results from former checks will be handed over for support.

## 3 Required equipment

- a. A Manus test set, consisting of:
- b. Calibrated test pipe for a flow rate of  $3.5 \text{ kg/min} \pm 0.4 \text{ kg/min}$  at 42 kPa
- c. Air bleed of 6 l/min.
- d. Electronic scale indicating every 10 grams
- e. Clamp to stop the water flow
- f. Bucket for water, of sufficient capacity, approx. 15 liters.
- g. Milk bucket including a lid with proper hose connection
- h. Tube to connect milk meter to milk bucket. Should be the same as the normally used tube; 19 mm internal diameter, max. length 650 mm.

## 4 Testing liquid

- a. Normal tap water, no specific temperature and no additional salt or acid.

## 5 The principle of the test

Before you start the water test, please check: water flow rate is  $3.5 \text{ kg/min} (\pm 0.4 \text{ kg/min})$  at 42 kPa vacuum level. The milk bucket and milk meter must be completely empty.

- a. Open all gates (gate switch closed)
- b. Press: “Cow-data-key” - F-key  
“Cow-cal.-key” - F-key  
“Temp-data-key” - F-key  
the display will show “TEST00.00”

· Suck up approximately 10 liters of water

- c. · Stop the water test when the display shows ~ 10 kg
- d. · Measure the water which passed through the meter and compare it with the value of the display. The values should be within +/- 200 grams. Repeat the procedure two times.

When within the limit, the water test is o.k. If not, make a calibration.

## 6 Quality of the observations/measuring

- a. If the first measuring value deviates +/- 0.1 kg from the reference value: meter = correct.
- b. If the first measuring value deviates more than 0.1 kg from the reference value, proceed to a second measuring.
- c. If duplicate measuring have an average deviation of < +/- 0.2 kg from the reference value:
- d. Meter = correct.
- e. Difference duplo's < 0.1 kg.

## 7 Deviating meters

When the measuring do not come up to this standard, the meter should be recalibrated and after that a new water test should be made. If it is still impossible to meet the standard, the meter needs service.

## 8 Replacement or repair of meters

When meters are replaced or when repairs influence the measuring, the meters should be calibrated. After calibration the good performance should be verified with a new water test.

## 9 Reporting of the results

The results of the periodic checking of the milk meters, as well as the interim changes and the checks that go with these changes will be reported to those concerned, the farmer, the main supplier and to the national milk recording organization.

## 10 Sampling equipment

- a. · Check the sampling equipment for cleanness and parts.
- b. · See to it that the sampling equipment is stored in a dry place, free from dust.

Hints for the sample taker and the farmer for correct sampling by means of Manuflow 2

### 10.1 Before sampling

- a. Make sure that the air inlet in the milk claw and milk meter is opened.
- b. Disinfect the sample equipment in a cleaning solution.
- c. Remove the rubber plug from the sampler ring.
- d. Attach the sampler to the meter (see pic-ture).

- e. Connect vacuum supply to the sample taker.
- f. Make sure that all equipment for sampling contains no water residues.

### 10.2 Taking the sample

- a. The display of the meter should always be at zero when the milking is started.
- b. After manual or auto-take off read the display and remove the sample bottle and replace it with a new one.
- c. Transfuse the sample three times by means of a mixture -bowl and take at once the sample.
- d. Place the empty sample bottle upside down to drain off.

### 10.3 After sampling

- a. Remove the sample equipment and disassemble the sampler adapter and clean all pieces carefully by hand in a cleansing- and disinfecting solution;
- b. Store the sampling equip-ment in a dry and dust free place;

**Farmer, do rinse your equipment with acids on a regular basis!**