



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

ICAR Guidelines for Routine Checking of the Milk Meters

Orion MMD500 Milk Meter

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Network. Guidelines. Certification.

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1 General

- a. The periodic checking will be done at least once in every 12 months.
- b. The testing procedure with water should be carried out with milk meters that are cleaned properly.
- c. The water test must be done without the sampler connected.
- d. The system vacuum level must be 40 to 60kPa (equal as used by determine reference).

2 Reference Value

The “reference value” of the MMD500 milk meter is the average of the two measurements with water, found during the testing procedure with water of the installation test or a reference value determined later and are handed over for local support (procedure is described in the installation manual – Milking Test at Dairy Farm, Determine Reference value).

3 Required equipment (ref. Fig. 1 & 2)

- e. Milk hoses with a 15-16 mm internal diameter (refer the Fig.1).
- f. An air inlet tube of 1.2 mm (supplier: ORION).
- g. Flow reducer (Flow ca 5.0 kg/min) with a water sucking opening of 3.8 mm (supplier: ORION).
- h. A shut-off valve (supplier: ORION).
- i. Calibrated electronic scale (min. accuracy 20 g).
- j. Some buckets of sufficient capacity (min. 25 liter).
- k. Some milking pails for the collecting of test water.
- l. A thermometer (accuracy +/- 1 °C).

4 Testing liquid

- m. Potable water should be used.
- n. Water with a temperature of 25 °C +/- 10 °C.
- o. Addition of around 50 grams of salt per 20 kgs of water (Salt: NaCl content of 99% or more).

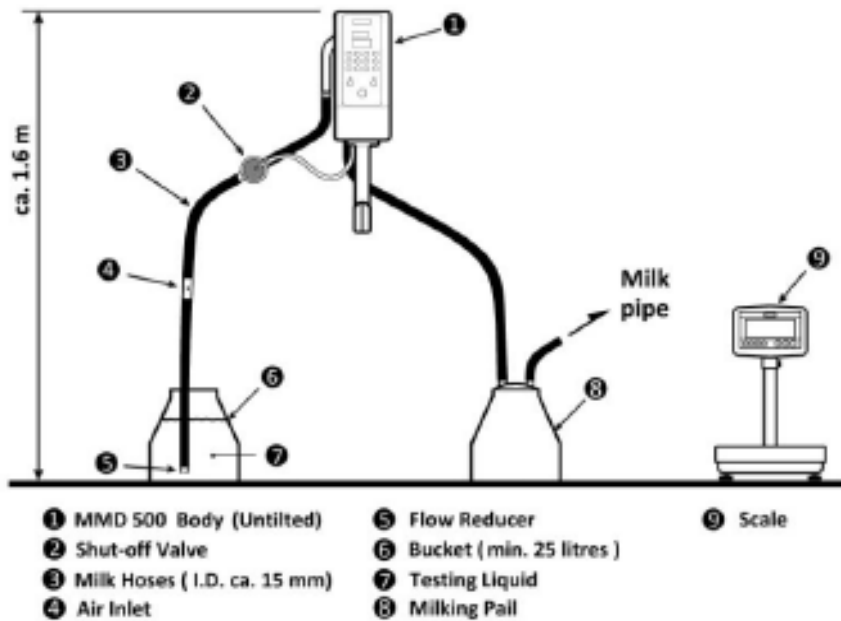


Fig. 1. Water test.

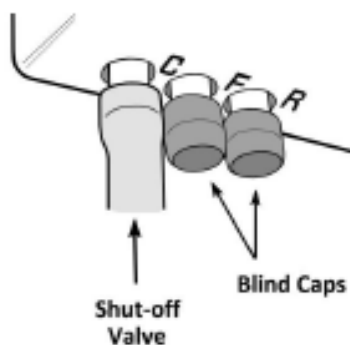


Fig. 2. Positions of blind caps

(Ports "F" and "R" of triple tube connection on the bottom of MMD500 body).

5 Principle of the test

- a. Clean the holes of the air inlet and the flow reducer by cleaning needle prior to testing.

===== Procedure =====

- b. Check and record of the weight of milking pail for receiving the test water prior to testing: the initial weight 2. To switch on the MMD500 in test mode, hold down <4 and 6> simultaneously on MMD500 keypad and insert the milk connection to the milk tap. Then, check the cow # display of the MMD500 shows "tEst" which means the MMD500 is in its test mode.
- c. Switch on the vacuum pump of the milking system.
- d. The vacuum level should be the same with one is during taking the reference value. Adjust the level, if need. Record the vacuum level.
- e. Prepare for the test as figure 1.

- f. Press key “START” to start a countdown timer of 2 minutes which is built-in the MMD500 and then MMD500 starts to suck the test water and measure the weight.
- g. At the end of the countdown, the MMD500 stops its measurement automatically.
- h. Record the reading of MMD500 display.
- i. Measure the weight of the milking pail with the collected test water and then subtract “the initial weight” from this weight to fix “the collected weight” for the test.
- j. Determine the difference in kg between the reading of MMD500 display and the collected weight. And record it as the measuring value.

The water may be collect for recycling, but the quantity should be checked each time.

6 Quality of the observations/measurements

- 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 or less from the reference value: meter= correct.
- d. When a meter does not come up to this standard during the periodic checking, proceed to a third or fourth measuring.

7 Deviating meters

- a. When the measurements do not come up to the standard, the testing procedure with test water should be repeated after checking the equipment, which may include, among other things, the air flow of the sucking set, tilting of the milk meter body, straightening up, and if necessary, dismantling of the meter.
- b. If it is still impossible to come up to the standard, the meter should be calibrated/adjusted or replaced.

8 Replacement or repair of meters

- a. When meters are replaced or when repairs influence the measurement, the meters are to be tested during the milking, after which the testing procedure with the water test should be carried out twice.
- b. This water test will then serve as "reference value".

9 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.

10 Hints for the sample taker and the farmer for correct sampling

10.1 Before sampling

See to it that:

- a. The meters are cleaned properly
- b. The air inlet of the claw is opened
- c. The sampling devices are assembled correctly
- d. The sampling devices are connected to the meters in the correct manner.
- e. All equipment for sampling contains no water residues (carelessness in this matter leads to a too low indication of percentages, especially where the first range of cows is concerned).

10.2 Taking the sample

- a. The display of the meter should always be at zero before starting to milk another cow.
- b. After the cow is off, to have a good mixing of sampled milk, the sample taker must rotate the "Valve core" of the sampler to let its outlet comes right below exactly to allow an efficient air bubbling for about 10 seconds.
- c. Just after the mixing, the sampler must take sample immediately.
- d. After the end of sampling procedure for the cow, the valve core should be handled to drain all of the remained milk in the sampler bottle toward the milk pipe.

10.3 The operational panel

- a. When the milking cluster is kicked off and "automatic removal" occur, one should press the "Detach/Cancel button", in order to retain the milk quantity that is already measured, and re-start the milking of the cow. The milk quantity after re-starting will be adding to the retained milk quantity.

10.4 After sampling

- a. The farmer removes the sample equipment for a careful cleaning by hand;
- b. Disassemble the sampler valve mechanisms and clean in a wash sink or vessel.
- c. The sampling equipment must be stored in a clean, dry place, free from dirt and out of direct sunlight.