



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

ICAR Guidelines for calibration of the milk meters

Pulsameter 2 Milk Meter

Version June 2018

Network. Guidelines. Certification.

Table of Contents

| | | |
|----------|---|----------|
| 1 | Calibration instructions with water..... | 3 |
| 2 | Commissioning..... | 3 |
| 3 | Required equipment | 3 |
| 4 | Procedure of the water test | 4 |
| 5 | Setting / correction of the calibration value..... | 4 |
| 6 | Prevention of measurement errors..... | 5 |

1 Calibration instructions with water

The device is pre-set at works. After installation at the milking position, an adjustment to the particular milking installation has to be carried out by a fine calibration.

Therefore, it is essential that you please pay attention to the following advices.

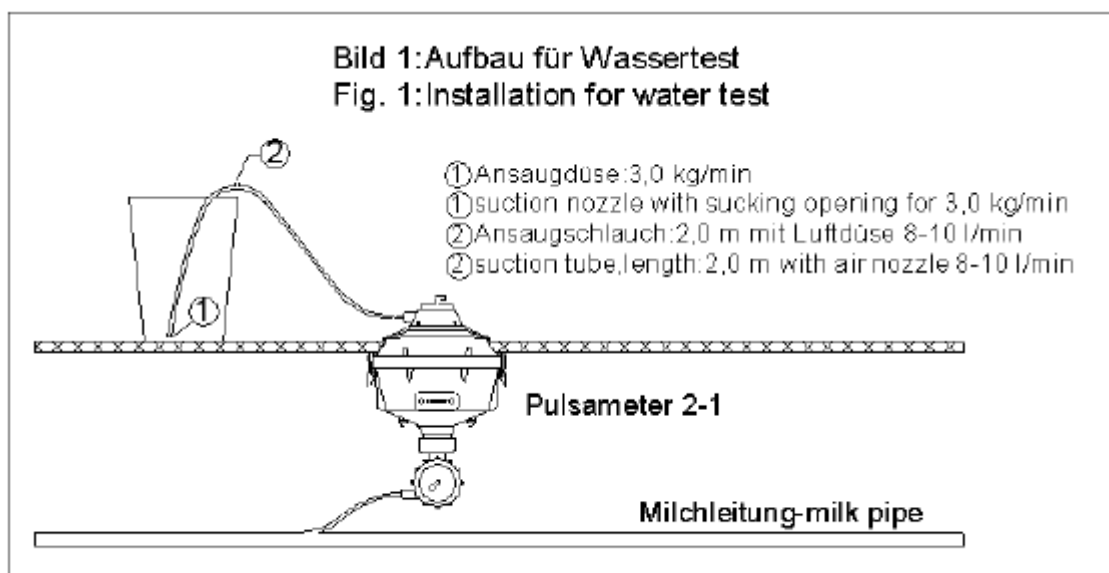
2 Commissioning

When the milking installation is put into operation the first time or when exchanging the Pulsameter 2-1, the calibration value '100' is set at all milking positions. Checking and fine calibration is to be done 4 weeks after the first commissioning, as the bearing points of the tipping scale are running stable by then. The fine calibration is carried out acc. point 2 and 3 of these instructions. At the first calibration as well as at routine checks, always qualified personnel are to be consulted, in order to remedy distinguishable deficiencies before the calibration.

3 Required equipment

Please refer to Figure 1(Fig.1)

- a. A suitable milk can
- b. A scale with 10g - resolution
- c. Standardised intake tube with concave intake nozzle (3kg/min) and air nozzle (8-10 l/min)
- d. A bucket of at least 10 kg capacity
- e. Measuring report of the last fine calibration (only necessary at routine checks)
- f. Thermometer



4 Procedure of the water test

Before the actual calibration, the previously set calibration value at is to be recorded in the measuring report and the installation has to be thoroughly cleaned and then rinsed.

- a. The bucket is to be filled with water with a temperature of ca. 30°C. and is to be put on the platform of the cow.
- b. The long milk tube of the milking unit is to be taken off from the inlet connections and the standardised intake tube of the test unit is to be attached on these connections.
- c. Before every measuring the tipping scale is to be emptied by operating the two air inlet plates on the top.
- d. The end of the tube with intake nozzle is to be dipped down to the bottom of the bucket. The concave end of the intake nozzle avoids that the nozzle adheres at the bottom.
- e. By the program “Milking”, the water is to be sucked off out of the bucket. The suction nozzle must not suck air and must not be blocked.
- f. Afterwards press the button for end of milking
- g. Read the display
- h. The displayed quantity should be $10 \pm 0,2$ kg

5 Setting / correction of the calibration value

- a. At least 2 measuring acc. to point 3. are to be carried out.
- b. If the displayed values are $10.0 \pm 0,2$ kg, the previous calibration value remains unchanged and no further measurement is necessary.
- c. If the displayed values exceed these limits, a correction is necessary.
- d. Afterwards, a new test for checking is carried out. If this measuring is within the range of tolerance, the calibration is completed.

Examples:

- a. First measuring: Display 9,9 kg
- b. Second Measuring: Display 10,0 kg
- c. Result: o.k.

Or

- a. First measuring: Display 9,7 kg
- b. Second Measuring: Display 9,8 kg
- c. Increasing the calibration value of 2,0 g, followed by a further test for confirmation.

Or

- a. First measuring: Display 10,3 kg
- b. Second Measuring: Display 10,3 kg
- c. Result: Reducing the calibration value of minus 3,0 g, followed by a further test for confirmation.

In case a correction of the calibration value has to be done, it always must be referred to the nominal size of 10,0 kg and corrected accordingly.

e.g. at

- a. Display 9,7 kg increasing the calibration value of + 3 g
- b. Display 10,4 kg reducing the calibration value of - 4 g
- c. Display 10,2 kg reducing the calibration value of - 2 g

The new-determined calibration value is to be recorded in the measuring report.

6 Prevention of measurement errors

To avoid mistakes in measurements, please pay attention to the following important advices:

- a. Basically, the calibration value is influenced by the housing (upper and lower part) as well as by the tipping scale. If one or more parts or a complete device is replaced / renewed, a new fine calibration as described in these instructions is mandatory and has to be recorded in the last measuring report!
- b. An exchange of the in point 5.1 mentioned parts of different Pulsameter is possible, but only when followed by a calibration the metering precision is assured.
- c. The service of all flexible and rubber parts at regular intervals has to be ensured. The bearings and the impact points of the tipping scales have to be checked for wear at least once a year. At high-efficient milking installations the wear-check is to be done twice a year – e.g. at milking robots and milking positions with more than 40 milking units/day.

If you always fulfil these minimum requirements, you possess a milk meter of high quality with an international approval, which will always provide you with correct measurements in the long term.