



THE GLOBAL STANDARD  
FOR LIVESTOCK DATA

# ICAR Guidelines for calibration of the milk meters

**IDC3**

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Network. Guidelines. Certification.

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## 1 ICAR periodic control

ICAR periodic control with testing liquid fluid must be done on IDC 3 which have been cleaned properly and

without sediments. Before control and adjustment, the technical condition and cleaning of the measuring part must be checked.

Washing must include the following:

- a. Washing according to SAC washing instructions, include a booster wash (Ecolab item no. 231 6870).
- b. If lime scale or other sediments are visible after wash perform an additional hot acid wash with a start temperature at min. 70°C and an end temperature above 42°C.

Check that the IDC 3's are hanging horizontally within a tolerance of  $\pm 5^\circ$ , and that the measuring cups are correctly fitted and not twisted in relation to the fitting tap.

ICAR periodic control must be done without sampler bottle for cows IDC (11388) being connected.

When doing an ICAR installation test on one or more IDC 3's it is important not to use any other IDC's in the milking system.

### 1.1 Testing liquid

The calibration fluid is mixed according to following table below:

Liter mixed fluid	15 Liter	20 Liter
House hold salt (NaCl)	45 gram	60 gram
Calibration fluid (12187)	8 ml	11 ml
Washer rinse (12190)	20 ml	27 ml

Mixing procedure:

- a. Dissolve NaCl in 1 liter of hot water with a temperature above 50°C in a 2 liter measuring cup.
- b. Add calibration fluid and washer rinse.
- c. Stir the mixture until salt is dissolved.
- d. Add hot water until 20 liter testing liquid is reached.

When using the testing liquid for calibration it must have a temperature between 20°C and 30°C.

Testing fluid can be used for an entire day taking into account the correct temperature between 20°C and 30°C. Use a thermometer 0°C to 100°C (171 00.107).

## 1.2 Required equipment

- a. Flowmeter complete (900 71.000) equipped with a 3.85 mm nozzle (12189) that gives 3 l/min at 38 kPa at high flow and a 1.5mm nozzle (12188) that gives 1 l/min at 38 kPa at low flow, see position A, figure1.
- b. One or more buckets with minimum 20 liter capacity see position B, figure 1
- c. One or more milking buckets for the collection of testing liquid, see position C, figure 1
- d. Calibrated electronic scale with digits (minimum accuracy 20 gram).
- e. Floating thermometer 0°C to 100°C (171 00.107) or similar with an accuracy at  $\pm 1^\circ\text{C}$ .
- f. 2 liter measuring cup for mixing of salt (NaCl), calibration fluid and washer rinse.
- g. Adapter for bucket lid branch  $\varnothing 16\text{mm}$  (210 46.303).

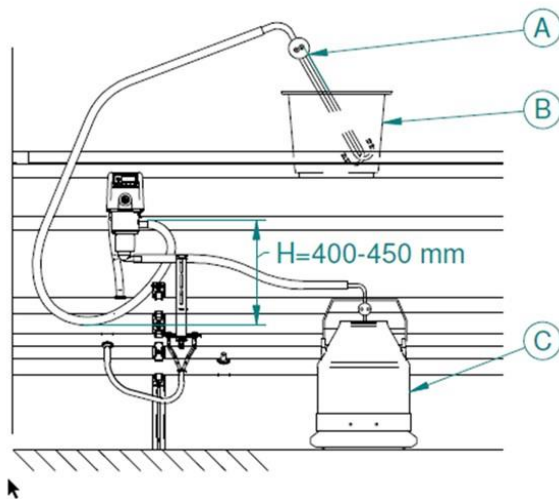


Figure 1: ICAR periodic control.

Remove the milk hose from the milking cluster and replace it with the flow meter (See position A, figure 1). It is important that the hose is guided from the flow meter to the IDC as usual.

Now the testing liquid is lead to a milking bucket (See position C, figure 1) instead of through the milk line.

It is important that the hose has a drop from the IDC 3's to the milk bucket for the testing liquid to primarily run through and not be pushed by air.

A bucket with testing liquid (See position B, figure 1), from which the flow meter sucks water is set where the cow would normally stand. Milking bucket must be equipped with "Adapter for bucket lid branch  $\varnothing 16\text{mm}$ " (210 46.303).

## 2 Periodic control

### 2.1 Test description

- a. Prepare for the as test as figure 1 (See chapter 1.2)
- b. Fill bucket with 20 liter testing liquid
- c. Open both nozzles of the flow meter (See position A, figure 1) and place flow meter in the bucket and press "Start".
- d. When 10.0 kg comes on the IDC 3 display, then press "Stop" and record weight in the spread sheet "IDC-farm adjustment" in the field IDC Display and IDC milk meter number.
- e. Measure the weight of the bucket on a calibrated weight and record weight in spread sheet "IDC-farm adjustment" in the field Weight and IDC Milk meter number.

### 2.2 Spread sheet "IDC-periodic control"

In spread sheet "IDC-periodic control" fields marked with grey must be filled.

Farm no (SAP ID)	123456	
Farmer name	Joe Farmer	
Address	Farmstreet 10	
Postal code + city	98765	Cowcity
Dealer / supplier	SAC – DK	
Parlor Type	Herringbone 2 x 3	
Type milk meter	IDC 3	
No. of meters	6	
Date [yyyy-mm-dd]	2016-10-20	
Performers (Initials)	JBA	

File will be stored as IPC IDC 20161020-Joe Farmer-Cowcity

When the client info have been completed press the OK button and rename file to "IPC IDC 20161020-Joe farmer-Cowcity" and store it at the same location as spread sheet "IDC-periodic control".

In spread sheet record IDC CAL factor, average difference and date for ICAR Installation Test before starting a 10 kg water test with testing liquid.

Read IDC 3 display and weight of milking bucket and record measurements in the spread sheet.

Farm no.	123456	
Farm name	Joe Farmer	
Address	Farmstreet 10	
Postal code + city	98765	Cowcity
Dealer / Supplier	Sac - DK	
Parlor type	Herringbone 2 x 3	
Type of milk meter	IDC 3	
Performers [Initials]	JBA	

ICAR Installation test				1. Periodic Checking			
IDC no.	IDC CAL factor	Average difference	Date [yymmdd]	IDC Display	Bucket weight	Diff	Dev
1	1008	0.99	160602	10.12	9.12	1.00	0.01
2	1008	0.99	160602	10.50	9.40	1.10	0.11
3	1008	0.99	160602	10.03	8.90	1.13	0.14
4	1002	0.99	160602	10.16	9.14	1.02	0.03
5	1017	0.99	160602	10.00	8.95	1.05	0.06
6	1008	0.99	160602	10.00	8.98	1.02	0.03

Note: There will be a difference on IDC 3 display weight and weight of milk bucket. This difference is due to the fact that the conductivity of milk and testing liquid is different, so it is not necessarily a fault if the weight is different.

If the first measurement deviates  $\leq 0.1$  kg from the Average difference (ICAR Installation Test), then IDC 3 is approved.

If the first measurement deviates  $> 0.1$  kg from the Average difference (ICAR installation Test), then proceed to a second measurement.

Farm no.	123456	
Farm name	Joe Farmer	
Address	Farmstreet 10	
Postal code + city	98765	Cowcity
Dealer / Supplier	Sac - DK	
Parlor type	Herringbone 2 x 3	
Type of milk meter	IDC 3	
Performers [Initials]	JBA	

ICAR Installation test				1. Periodic Checking				2. Periodic Checking			
IDC no.	IDC CAL factor	Average difference	Date [yymmdd]	IDC Display	Bucket weight	Diff	Dev	IDC Display	Bucket weight	Diff	Dev
1	1008	0.99	160602	10.12	9.12	1.00	0.01			0.00	0.00
2	1008	0.99	160602	10.50	9.40	1.10	0.11	10.45	9.35	1.10	0.11
3	1008	0.99	160602	10.03	8.90	1.13	0.14	10.05	8.95	1.10	0.11
4	1002	0.99	160602	10.16	9.14	1.02	0.03			0.00	0.00
5	1017	0.99	160602	10.00	8.95	1.05	0.06			0.00	0.00
6	1008	0.99	160602	10.00	8.98	1.02	0.03			0.00	0.00

If the second measurement deviates  $\leq 0.2$  kg from the Average difference (ICAR Installation test), then IDC 3 is approved.

If the second measurement deviates  $> 0.2$  kg from the Average difference (ICAR installation test), then proceed to a third measurement.

### 2.3 Deviating IDC 3 meters

If the IDC 3 measurements does not fulfil the requirements, the testing procedure with testing liquid must be repeated after checking the equipment. For checking please look below:

- a. Check air flow in flow meter.
- b. Check that IDC 3 milk meters is hanging horizontally within  $\pm 5^\circ$ .
- c. Check that IDC 3 milk meter and measuring pins are cleaned properly.

If it is still impossible to come up to the standard, the meter should be calibrated/adjusted or replaced. For up to 25% of the meters you can adjust the CAL-factor and re-test. If more meters does not come up to the standard, you have to follow the procedure in chapter 3 IDC 3 CAL Factor from the document ICAR Installation\_Test\_SAC.

If the meter part for IDC for cows (11419) or the cup for indicator (11172) is replaced, then a new ICAR Installation Test of the mentioned of IDC 3's is required.

It is only IDC' 3 which have had replaced the meter part for IDC for cows (11419) or the cup for indicator

(11172) which should be water calibrated with 4 and 1 kg/minute. Test equipment must be stored in a dry and clean environment.