ICAR

INSTALLATION TEST IDC 2b, 3b

(NEW MILKING SYSTEM), REV 2

IDC3 MILK METER

MANUAL NO.: H42 63.200GB

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DK-6000 Kolding · www.sacmilking.com · +45 75 52 36 66

FOR THE COW, THE MILK AND THE MILKER

TABLE OF CONTENT

1 ICAR INSTALLATION (New Milking System)

Before starting ICAR installation test on a new milking parlor, it is important that milking parlor have been in use for at least 2 weeks or else the accuracy of the measuring pins on meter part for IDC for cows (11419) will not be good.

Washing must include following:

- If lime scale or other sediments are visible after wash perform an additional hot acid wash with a start temperature at min. 75°C and end temperature above 42°C must be performed.

The milking system must be clean and without sediments before start of ICAR installation test!

Check that the IDC3 b´s are hanging horizontally within a tolerance of ±5°, and that the measuring cups are correctly fitted and not twisted in relation to the fitting tap.

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

When doing an ICAR installation test on one or more IDC3 b´s it is important not to use the IDC´s which are not to be ICAR controlled.

1.1 Testing liquid

The testing liquid 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:

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

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

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

1.2 Required equipment

1. 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, figure 1.
2. One or more buckets with sufficient capacity (minimum 20 liter) see position B, figure 1
3. One or more milking buckets for the collection of testing liquid, see position C, figure 1
4. Calibrated electronic scale with electronic digits (minimum accuracy 20 gram).
5. Floating thermometer 0 – 100°C (171 00.107) or similar with a accuracy at ± 1°C.

6. 2 liter measuring cup for mixing of salt (NaCl), calibration fluid and washer rinse.
7. Adapter for bucket lid branch ø16 (240 46.303).

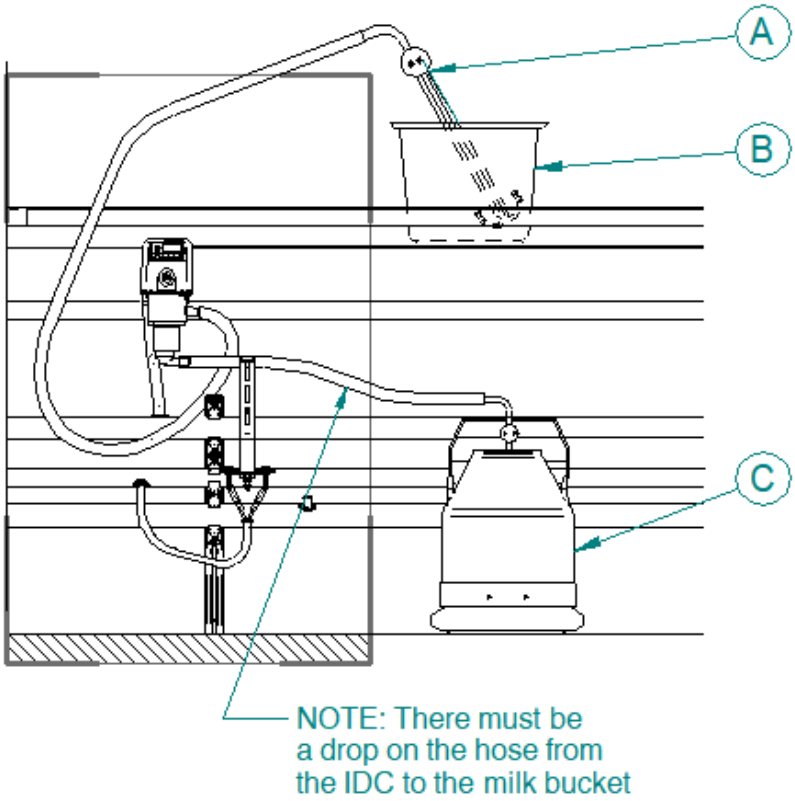


Figure 1, ICAR control

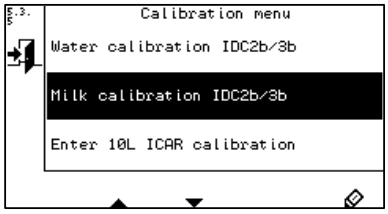
Remove the milk hose from the milking cluster and replace it with the flow meter (See position A, figure 1). It is important that hose is guided from flow meter to IDC as usual.

Now the testing liquid is lead to a milking bucket (See position C, figure 1) instead of through the milk pipe. It is important that the hose has a drop from the IDC3´s to the milk bucket for the testing liquid to primarily run through and not be pushed by air.

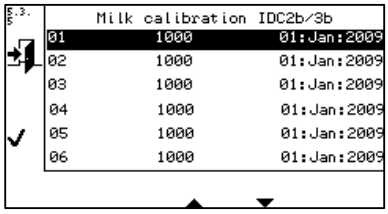
A bucket with testing liquid (See position B, figure 1), from which the flow meter sucks water is set where the cow would normally stand. Milking bucket must be equipped with ”Adapter for bucket lid branch ø16” (210 46.303).

2 WATER CALIBRATION OF IDC 2b and 3b´s

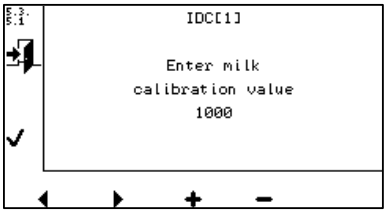
First adjust the IDC 3b CAL factor to 1000 in menu 5.3.5 IMPORTANT:



Menu 5.3.5 Press ◈ in right bottom corner.

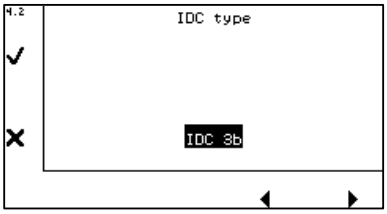


Choose the IDC 3b in the list and press √



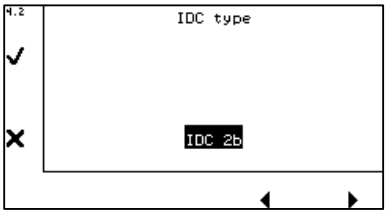
Enter new IDC 3b CAL factor

1

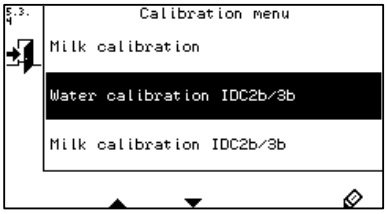


Please chose IDC 2b or 3b in menu 4.2 on UniMilco. Water Calibration menu 5.3.4 on UniMilco can only be accessed when IDC 2b or 3b have been chosen in menu 4.2!

It is important that all IDC 2b or 3b are in milking mode and are not activated.

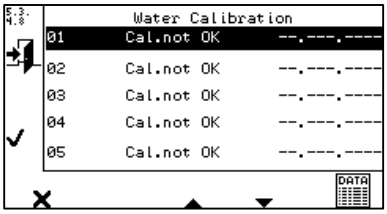


2



Chose 5.3.4 Water calibration IDC 2b or 3b and press ◈ in right bottom corner.

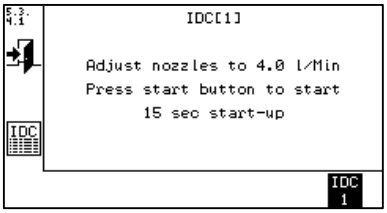
3



Chose up to 5 x IDC 2b or 3b for water calibration test

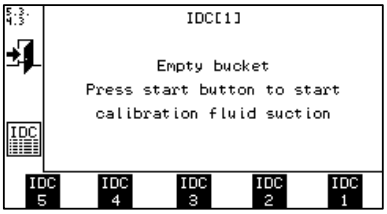
2.1 Water calibration IDC 2b or 3b step 1: 4 kg/min

1



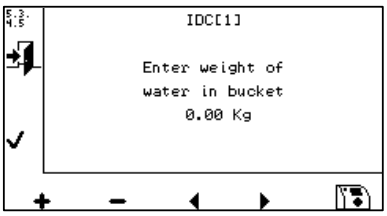
The flowmeter is set to suck through the large and the small nozzle at the same time. The flow meter will now suck 4 l/min. Press start and the IDC 2b or 3b will suck up testing liquid and will stop automatically after 15 seconds. (This is done to change the amount of testing liquid in the IDC 2b or 3b and change the hoses to a high flow).

2



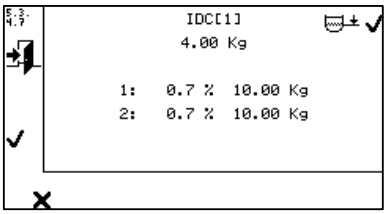
Empty the milk bucket on the floor and ensure that there is enough testing liquid in the bucket standing in the cow´s place.
Press the start button on the IDC 2b and 3b and it starts sucking testing liquid from the bucket. The IDC 2b or 3b stops automatically, when 10 kg have been sucked through IDC 2b or 3b and screen image changes to the one displayed in item 3.

3



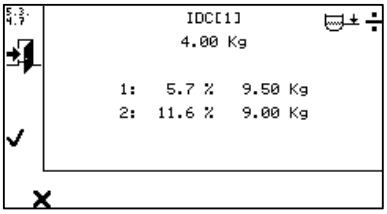
Weight out the amount of testing liquid (kg) in the milk bucket and enter the weight into the UniMilco. IDC 2b or 3b number is shown on top of the UniMilco Screen. After successful entry, the display image changes to the one in item 4.

4

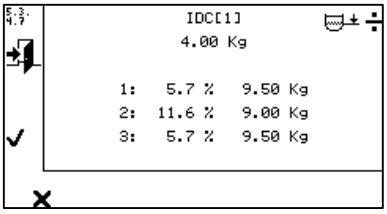


One of the following screen images appear.

Top one appears when this part of the calibrations is successful and all items on the screen have been marked by a percentage. As displayed an √ appears in top right corner. Press √ in left side to continue to the next calibration step. IDC 2b or 3b now shifts to step 2 item 1.



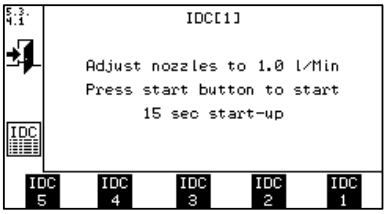
The bottom screen image appears if this part of the calibrations is inaccurate and must be repeated or enough measurements have not been made. As displayed there is no √ above the center button. Furthermore, there is a ÷ on top of the screen. It is only possible to leave the menu, which brings the IDC 2b or 3b back to step 1 item 2.



Occasional 3 or more calibrations must be conducted before the √ appears in the top right corner. Tests must be conducted until the √ appears else the measuring beaker have to be replaced.

2.2 Water calibration IDC 2b or 3b step 2: 1 kg/min

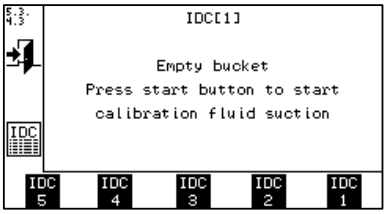
1



Set flowmeter to only suck through the small nozzle (flow meter will now suck 1 l/min). Press start, and the IDC 2b or 3b will suck up testing liquid for 15 seconds. The IDC 2b or 3b will stop automatically.

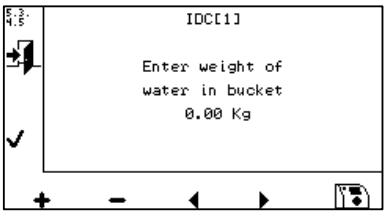
This is done to change the amount of testing liquid in the IDC 2b or 3b and change the hoses to a low flow.

2



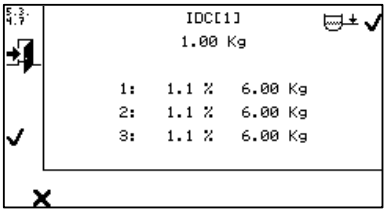
Empty the milk bucket on the floor and ensure that there is enough testing liquid in the bucket standing in the cow´s place. Press the start button and the IDC 2b or 3b will start sucking up testing liquid from the bucket. The IDC 2b or 3b stops automatically, when 6 kg has been sucked through IDC 2b or 3b and screen image on UniMilco changes to the one displayed in item 3.

3



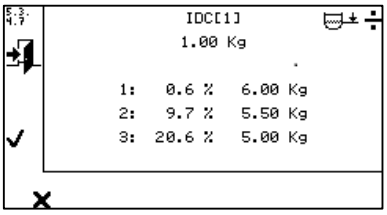
Weight out the amount of testing liquid (kg) in the milk bucket and enter the weight into the UniMilco. After successful entry, the display image changes to the one in item 4.

4



One of the following screen images appear.

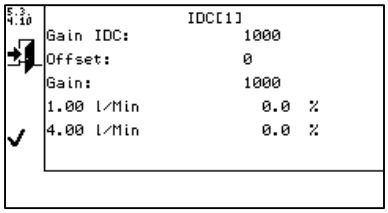
Top one appears on UniMilco when this part of the calibrations is successful and all items on the screen have been marked by a percentage. As displayed a √ appears in top right corner. Press √ in left side to continue to the next calibration step. IDC 2b or 3b is now water calibrated.



The bottom screen image appears if this part of the calibrations is inaccurate and must be repeated or enough measurements have not been made. As displayed there is no √ in top right corner. Press button in left side, which brings the IDC back to item 2, step 2 again

2.3 Water calibration step 3 – completion

1



Gain IDC, Offset, Gains, 1,00 l/min and 4,00 l/min values can be seen for each IDC 2b or 3b in menu 5.3.4.10

The procedure for milk calibration of IDC 2b is now completed. For IDC 3b the procedure continues in the next section.

3 IDC 3b CAL factor – Only for IDC 3 installations

All new IDC 3b´s will have CAL factor at default 1000, please check UniMilco menu 5.3.5

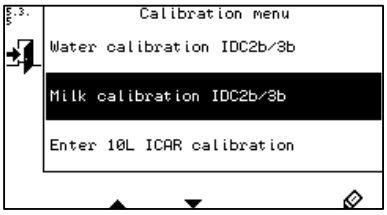
New IDC 3b CAL factor to be calculated on milk in the milk tank and milk amount registered in the management program (IDC3 b´s).

This difference can be corrected in the following way, please look at example below:

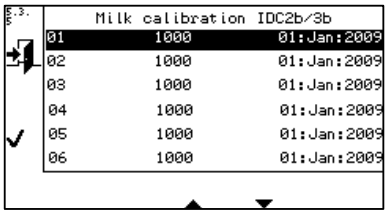
Line	Description	Amount	
R1	The amount collected by the milk tanker	5896	Kg
R2	Own consumption of milk	300	Kg
R3	Total milk amount	6196	Kg
R4	The milk amount recorded by all IDC3 3b´s in the same period	6147	Kg
R5	Previous IDC 3b CAL factor (Please look below)	1000	
R6	New IDC 3b CAL factor (6196 / 6147) x 1000	1008	

R6 is the new IDC 3b CAL factor= 1008.

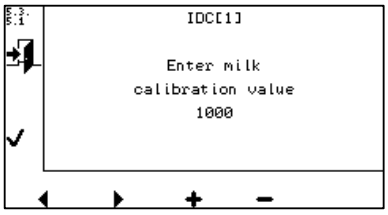
R6 IDC 3b CAL factor must be entered into IDC 3b in Menu 5.3.5:



Choose menu 5.3.5 and Press ⌀ in right bottom corner.



Menu 5.3.5 Choose the IDC 3b in the list and press √.



Menu 5.3.5.1, Enter new IDC 3b CAL factor.

3.1 Test description.

1 Prepare for the test as figure 1 on page H42 63.221
2 Fill bucket with 20 l testing liquid
3 Open both nozzles of the flow meter (See position A, figure 1 on page H42 63.221) and place flow meter in the bucket and press ”Start”.
4 IDC 3b will stop automatically when IDC 3b have reached 10.0 kg. Record weight in the spread sheet ”IDC-farm adjustment” in the field IDC Display and IDC milk meter number.
5 Measure the weight of the bucket on a calibrated weight and record weight in spread sheet ”IDC-farm adjustment”, end of this document, in the field Weight and IDC Milk meter number.

3.2 Spread sheet ”IDC-farm adjustment”

In spread sheet ”IDC-farm adjustment, page 1), fields marked with grey must be filled.

Farm no	123456	
Farmer name	Joe Farmer	
Adresse	Farmstreet 10	
Postal code + city	98765	Cowcity
Dealer / supplier	SAC – DK	
Type parlor	Herringbone 2 x 3	
Type milk meter	IDC3	
No. of meters	6	
Date [yyyy-mm-dd]	2016-10-20	
Performers (Intials)	JBA	
File will be stored as	20161020-Joe Farmer-Cowcity	

When client info have been completed press the OK button and the file ”20161020-Joe farmer-Cowcity” will be stored on the same location as spread sheet ”IDC3 farm adjustment”.

Confirm that ”Initial SAC calibration is performed” also ”Average CAL factor is determined by comparing between bulk tank and milk meter registration” have been completed. After this the program with the calibration of IDC 3b´s (IDC3 farm adjustment, page 2).

3.2.1 First and second water test

In spread sheet record Calibration value (IDC CAL factor) including first and second recording for IDC 3b´s (Page 2), read weight of milking bucket default 10,0 kg milk for each IDC and record measurements in spread sheet.

No. of milk places	6
Calibration value (IDC CAL factor)	1008
Difference (2 time standard deviation)	0.25

		Water calibration			2. Water calibration		
IDC No.	IDC CAL factor	IDC Display	Bucket weight	Diff	IDC Display	Bucket weight	Diff
1	1008	10.06	9.00	1.06	10.12	9.12	1.00
2	1008	10.08	9.14	0.94	10.50	9.50	1.00
3	1008	10.06	9.06	1.00	10.03	9.06	0.97
4	1008	10.04	9.06	0.98	10.16	9.04	1.12
5	1008	10.10	9.15	0.95	10.00	9.15	0.85
6	1008	10.03	9.02	1.01	10.00	8.98	1.02
Average difference				0.99			
Count of deviating values				0.00			
Standard deviation these value				0.04			

Check 1

Note: There will be a difference on IDC 3b (Default 10,00 kg) and weight of milk bucket. Difference is due to conductivity between milk and testing liquid is different, so it is not an fault when weight is different.

Spread sheet will calculate the difference in kg between IDC 3b and tara weight of the milk bucket, if difference of measurement 1 and 2 is ≤ 0,10 kg then IDC 3b´s is approved. If difference of measurement 1 and 2 is > 0,10 kg then an extra measurement is required.

Press the button ”Check 1” and the spread sheet shows that IDC 3b number 1, 2, 3, 5 and 6 is ok and extra measurement of IDC 3b number 4 is required.

No. of milk places	6
Calibration value (CAL factor)	1008
Difference (2 time standard deviation)	0.25

		Water calibration			2. Water calibration			3. Water calibration			Averages		Calculca	To do
IDC No.	CAL factor	IDC Display	Bucket weight	Diff	IDC Display	Bucket weight	Diff	IDC Display	Bucket weight	Diff	Diff	Dev	CAL factor	Action
1	1008	10.06	9.00	1.06	10.12	9.12	1.00			0.00	1.03	0.04	1008	OK
2	1008	10.08	9.14	0.94	10.50	9.50	1.00			0.00	0.97	-0.02	1008	OK
3	1008	10.06	9.06	1.00	10.03	9.06	0.97			0.00	0.98	-0.01	1008	OK
4	1008	10.04	9.06	0.98	10.16	9.04	1.12			0.00	0.00	0.00	1008	EXTRA MEASUREMENT
5	1008	10.10	9.15	0.95	10.00	9.15	0.85			0.00	0.90	-0.09	1008	OK
6	1008	10.03	9.02	1.01	10.00	8.98	1.02			0.00	1.02	0.03	1008	OK
Average difference				0.99							0.00		1008	
Count of deviating values				0.00										
Standard deviation these values				0.04										

Check 2

Deviating IDC 3b meters

When the measurement of IDC 3b´s do not come up to standard, the testing procedure with testing liquid should be repeated after checking the equipment, please look below:

- Check air flow in flow meter
- Check that IDC 3b milk meters is hanging horizontally within ± 5°
- Check that IDC 3b milk meter and measuring pins are cleaned properly

Test equipment must be stored in a dry and clean environment.

3.2.2 Third Water test

Take a third measurement of IDC 3b number 4, where field is marked ”Extra measurement” and press the “Check 2” button.

No. of milk places	6
Calibration value (IDC CAL factor)	1008
Difference (2 time standard deviation)	0.25

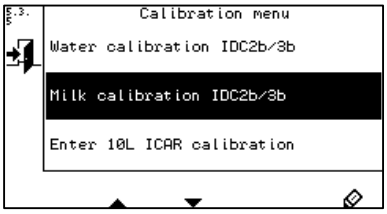
		Water calibration			2. Water calibration			3. Water calibration			Averages		Calculc	To do
IDC No.	IDC CAL factor	IDC Display	Bucket weight	Diff	IDC Display	Bucket weight	Diff	IDC Display	Bucket weight	Diff	Diff	Dev	IDC CAL factor	Action
1	1008	10.06	9.00	1.06	10.12	9.12	1.00			0.00	1.03	0.04	1008	OK
2	1008	10.08	9.14	0.94	10.50	9.50	1.00			0.00	0.97	-0.02	1008	OK
3	1008	10.06	9.06	1.00	10.03	9.06	0.97			0.00	0.98	-0.01	1008	OK
4	1008	10.04	9.06	0.98	10.16	9.04	1.12	10.10	9.04	1.06	1.05	0.06	1002	OK
5	1008	10.10	9.15	0.95	10.00	9.15	0.85			0.00	0.90	-0.09	1017	OK
6	1008	10.03	9.02	1.01	10.00	8.98	1.02			0.00	1.02	0.03	1008	OK
Average difference				0.99							0.99		1008	
Count of deviating values				0.00										
Standard deviation these value				0.04										

Print example

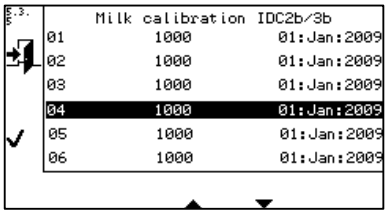
If difference between IDC 3b (Default 10,00 kg) and tara weight for three measurements is ≤ 0,21 kg then IDC 3b´s are approved.

If difference on IDC 3b (Default 10,00 kg) and tara weight for three measurements is > 0,21 kg then do a fourth or fifth measurement.

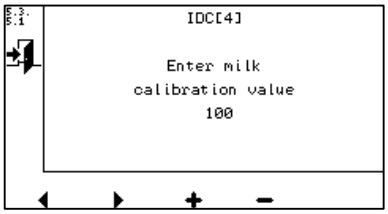
Enter new IDC CAL factor for IDC 3b number 4 and 5, as shown below. Press the left button for minimum 2 seconds and press code 07531 and enter 1002 for IDC 3b number 4 and 1017 for IDC 3b number 5:



Choose menu 5.3.5 Press ◈ in right bottom corner.



In menu 5.3.5, choose the IDC 3b in the list and press √



In menu 5.3.5.1, enter new IDC 3b CAL factor

Now all IDC 3b should be calibrated and ready for operation.