

## BacSomatic™ Integrated bacteria and somatic cell count



The BacSomatic™ provides rapid hygiene testing of milk as it is received at the dairy. BacSomatic is the first-ever integrated bacteria and somatic cell tester and offers full automation for minimal reagent handling and consistent test results. It is ideal for dairies and smaller laboratories needing only a low-volume, yet high-performance analyser.

Sample	Parameters
Raw cow milk	Bacteria count and Somatic cell count

# Check it first and avoid nasty surprises

The BacSomatic™ gives dairy producers new powers to test the hygienic quality of milk on-the-spot.

The rapid somatic cell and total bacteria count allows deliveries to be checked and segregated while sub-standard material can be rejected before it is used in the process.

As the first-ever integrated bacteria and somatic cell tester, BacSomatic offers a fast alternative to manual assay or semi-automated methods requiring reagent handling. Results for bacteria count are delivered within nine and half minutes, whereas results for somatic cell count are delivered within one and half minute. The method is the same as the well-known methods used in FOSS BactoScan™ and Fossomatic™ analysers used by raw milk testing centres around the world.

## Safer and more accurate than alternative methods

Built on a long FOSS tradition of automating analytical tests, BacSomatic uses ready-to-use reagents in an enclosed bag system which effectively avoids skin contact. The automated procedure ensures exact reagent dosage every time, reducing the risk of human error that can occur with other methods. Eliminating the need for reagent mixing reduces the risk of errors even further, making the BacSomatic a platform for highly consistent results.



Measurements are in compliance with international dairy standards

A sensor in the reagent bag indicates the number of available tests remaining. The instrument can also be connected to the internet for online remote monitoring for consistent performance.

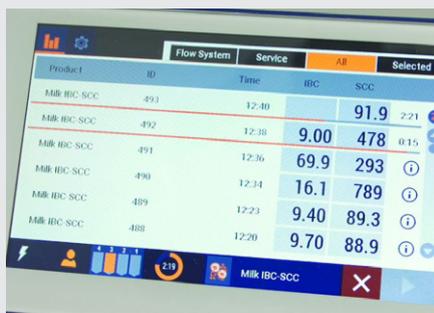
## Simple and flexible to use

Built on a long heritage of FOSS analytical technology, BacSomatic combines robust performance with a modern interface. Very easy-to-use, it requires no special skills or training, allowing anyone to make a valid test. The unit is also easy-to-service and backed by global FOSS support.

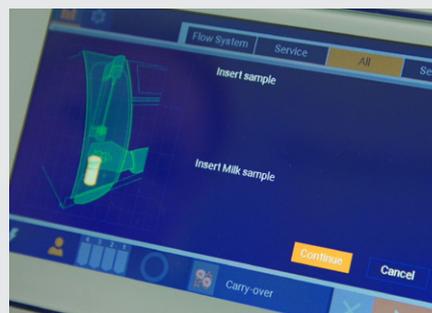
## Using the BacSomatic



Place raw cold milk under the pipette, press start.



One sample – two results: The instrument takes in milk for both bacteria and somatic cell count in one go.



Videos and graphics guide the user. Touch screen with simple, intuitive navigation.

# Technology

The BacSomatic™ is based on the same technology employed in top of the range BactoScan™ and Fossomatic™ milk analysers used for official central milk testing around the world. The only difference is the volume of tests that can be performed.

With BacSomatic, samples are presented manually, one-by-one as required, for example, when a delivery truck arrives at the dairy. In comparison, BactoScan and Fossomatic analysers are much larger and highly automated instruments designed for continuous tests.

## Flow cytometry method

Both the bacteria count and somatic cell count are based on the same flow cytometry measurement principle.

Prior to bacteria measurement, all components, except for bacteria to be counted, are broken down in an incubator. The bacteria are then dyed with a DNA-specific reagent staining medium and a precise syringe system is used to pass them through a flow cell one-by-one where they are exposed to a fluorescent light beam from a laser source. The test takes nine minutes.

Somatic cells are counted immediately after the milk sample has been mixed with dye. This test does not require incubation and therefore takes only one minute.

The stained cells emit red light with one light pulse for every cell passing the laser.

The fluorescent light is detected by a highly sensitive detector, which gives electronic impulses. The electronics count the pulses and display them in a pulse height analysis (PHA) diagram on the instrument screen.

## Integrated bacteria and somatic cell count

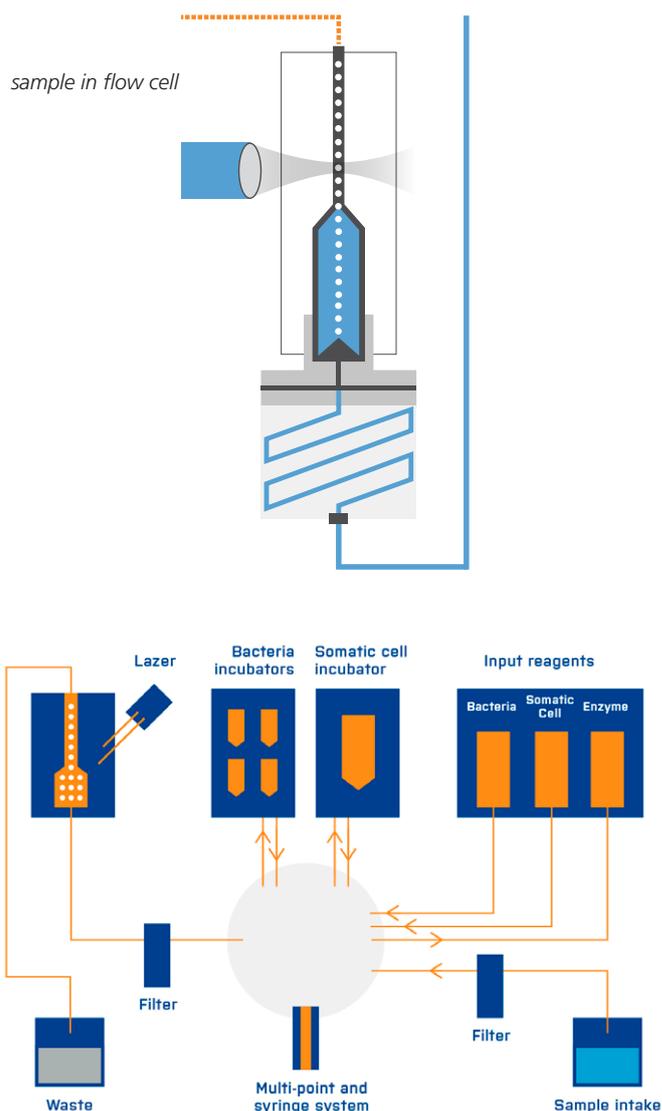
A flow system directs the sample to a bacteria incubator or somatic cell mixing chamber where the cells are stained and then measured by the laser source. Two different laser intensity levels are used according to whether a somatic cell count or bacteria count is to be performed.

The two different measurements can be performed simultaneously or individually. However, there is a difference in the time-to-result because the somatic cell does not need incubation and is considerably quicker than for bacteria cells which need to be incubated for eight minutes.



### With Bacsomatic you can:

- Check hygiene quality at the weighbridge before you start using it
- Test without risking contact with chemical reagents
- Get two key hygiene parameters in one automatic test operation



BacSomatic flow system

## Bacteria count conversion to CFU

BacSomatic measures individual bacteria count (IBC). However, users may be obliged to present their results in Colony Forming Units (CFU), which can be obtained by a traditional plate count method. BacSomatic does not convert the measurement to IBC but includes a software tool to key-in the conversion table.

## Reagent bag system

The reagent bag system is specifically designed for safe, contact-free use of reagents. The reagents are provided ready-to-use in bags. Place the bags in the instrument and close the door and you are ready to test. A sensor on the bag indicates the number of available tests remaining.

## Software interface

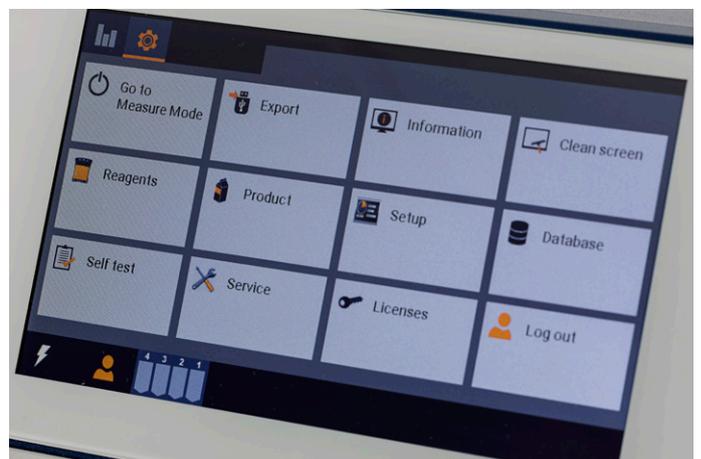
The user interface includes:

- Touch screen. No external or internal PC – only embedded software
- Visual guides, for example, on installing a new reagent bag
- Export of results to spreadsheet
- Graphical interface for service operations
- Barcode reader

## Networked instruments save time

Mosaic networking software allows multiple instruments to be monitored and controlled from a single desktop, reducing the cost of ownership of multiple installations and making day to day maintenance tasks such as monitoring instrument performance quicker and more convenient.

If required, the software can also allow FOSS experts to access data for remote support via the internet.



# Specifications

## Performance Data

Instrument	BacSomatic™
Components	Total somatic cells (SCC) Individual bacterial count (IBC)
Sample type	Raw milk from cows
Analysis capacity	SCC and IBC :15 samples/hour Only IBC :15 samples/hour Only SCC: 40 samples/hour
Carry over	IBC: <1% relative, usually <0.5% SCC: <1% relative, usually <0.5%
Sample intake	SCC and IBC: 7,2 ml IBC only: 6,4 ml SCC only: 2,5 ml
Sample temperature	2-4°C
Working factor	IBC: 100 SCC: 100
Measuring range	IBC: 5000-20 mln IBC/ml SCC: 0-10 mln cells/ml
Performance range	IBC: 10000-10 mln IBC/ml SCC: 100000-1.5 mln cells/ml
Repeatability	IBC: Sr≤0.07 log relative, usually 0.06 at 10-50 IBC/μl Sr≤0.05 log relative, usually 0.04 at 51-200 IBC/μl Sr≤0.04 log relative, usually 0.02 at >200 IBC/μl SCC: CV<6% at 100000 cells/ml CV<4% at 300000 cells/ml CV<3% at 500000 cells/ml
Accuracy	IBC: Typical Sy,x<0.25 log units from SPC (plate counting) SCC: <10% relative mean different from Direct Microscopic SCC
Pollution degree	2

## Technical Data

Dimensions (W x D x H)	400 x 400 x 400 mm
Weight	25 kg
Mains supply	100-240 VAC, 50/60 Hz
Fuses	250 VAC, T 2.A0L, 5x20 mm

## Installation Requirements

Power supply	100-240 VAC, 50/60 Hz.
Power consumption	Max 150 VA
Ambient temperature	5-35°C
Relative humidity	<93%RH
Altitude	Up to 2000 m
Weight	25 kg
Dimensions (W x D x H)	400 x 400 x 400 mm
Bench space (W x D)	600 x 630 mm
Minimum space between instrument and walls	200 mm
Operation	Indoor use
Dew point	Lower than temperature at the instrument location.
Water supply	The instrument does not require a direct connection to water tap, but in order to prepare the chemical solutions, ultrapure (de-mineralized) water must be available.
Mechanical environment	For best performance place the instrument on a stable surface away from excessive and continuous vibration.
Drain	Outlet tube for draining of liquids waste to a waste bottle or to a permanent drain.

## THE FIRST-EVER INTEGRATED BACTERIA AND SOMATIC CELL TESTER

- Fast alternative to manual assay, no manual steps
- Simultaneous results for bacteria count and somatic cell within nine and a half minutes (one and a half minutes for somatic cell alone)
- Approved method as good as laboratory results

## MORE ACCURATE THAN ALTERNATIVE METHODS

- Fully automated procedure avoids risk of human error and inconsistency
- Ready-to-use reagents with exact same dosage for every measurement
- Online remote monitoring of instrument for consistent performance

## SIMPLE AND FLEXIBLE TO USE

- Easy test for smarter money-saving decisions on how to use milk
- Save time and resources with intuitive touch-screen operation, no special skills or training required
- Robust instrument built on FOSS heritage of automating analytical tests backed by remote internet support facilities



# FOSS

FOSS  
Foss Allé 1  
DK-3400 Hilleroed  
Denmark

Tel.: +45 7010 3370  
Fax: +45 7010 3371

info@foss.dk  
www.fossanalytics.com

