

MilkoScan™ 7 RM

High capacity milk-testing for dairy herd improvement and milk payment



The MilkoScan™ 7 RM is a high capacity, fully automatic milk analyser for central milk testing (CMT) payment and dairy herd improvement (DHI). Results are delivered simultaneously in six seconds while unique hardware and software features boost proficiency in the laboratory. It is IDF and AOAC compliant. MilkoScan 7 RM can be integrated with the Fossomatic 7 or Fossomatic 7 DC somatic cell counter to form a CombiFoss™ 7.

Sample	Parameters
Raw cow, sheep, goat and buffalo milk	Fat, protein, lactose, solids, urea, Freezing Point Depression, Free Fatty Acids, casein, fatty acids profile, ketosis and others such as pH, H-index and untargeted adulteration screening



Offer better service with multiple parameters from a single sample in six seconds

Extend your services and help your customers meet modern challenges such as dairy herd productivity, feeding efficiency and protection of the milk supply.

The CombiFoss 7 provides advanced tests pioneered by FOSS such as screening for Ketosis and untargeted raw milk (adulteration) screening. An integrated unit avoids the time and cost of separate equipment with one rapid analysis of up to 17 parameters in six seconds. For instance, screening for indications of ketosis as part of routine milk testing allows you to single out suspect samples and point out individual cows for treatment early on. Monitoring of Urea levels and Fat/Protein ratio helps optimize feed balance and saves costs on excessive levels of Protein in feed, while Casein analysis helps optimise cheese and yoghurt production.

- Measure urea and fat/protein ratio for optimal feed balance
- Balance energy and protein in feed to decrease risk of ketosis in herds
- Casein analysis – helps to adjust & improve breeding for optimal casein content

More results at less cost with 7th generation MilkoScan technology

Under the lid of the MilkoScan 7 RM, hardware features boost proficiency in the laboratory and keep the results flowing in

step with the capacity demands of any laboratory. The latest in flow system technology including a diamond cuvette technology ensures maximum uptime. The cuvette element is backed by 10 year guarantee. Trust in the reliability of results, whether running at 100 or 600 samples per hour. For ease of cleaning and maintenance, the modular design makes periodic maintenance and service easier and an easy to clean sample conveyor without need for compressed air allows fast, effective at the end of a shift.

Higher proficiency and less man hours

Besides a smart hardware system, the latest in networking software allows effective control of multiple instruments. Control from a single desktop saves time and ensures identical performance across CombiFoss units regardless of location.

Other advantages include:

- Reduced risk of data loss because data is always backed up in one place
- Minimal downtime because upgrades and adjustments are made while instruments continue to run
- More consistent operations because instrument management tasks are performed in one go, reducing the risk of human error

Technology

MilkoScan 7 RM

MilkoScan™ 7 RM is based on Fourier Transform InfraRed (FTIR) analysis. It works with the mid-Infrared region of the spectrum from 3 - 10 µm corresponding to 1000 – 5000 cm⁻¹.

The latest in n flow technology optics allows an excellent signal to noise ratio with a highly robust diamond cuvette. The result is stable high performance and very high repeatability, even for low concentration constituents. The FTIR interferometer scans the full infrared spectrum, collecting data simultaneously and allowing measurement of multiple parameters. Analysis of an additional parameter simply becomes a matter of calibration.

Standardisation

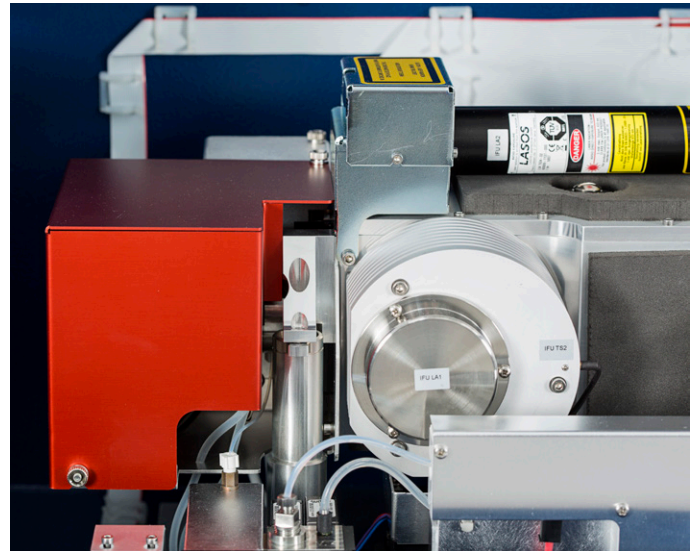
The fact that FTIR instruments are standardised offers a great advantage. A calibration developed on one instrument may be transferred to other instruments, which due to the standardisation will provide identical readings. Standardisation is achieved by comparing spectra of a specially developed FTIR equalizer sample, collected on a newly installed instrument (slave) to the spectra of a similar sample using a master instrument at FOSS.

Components measured

All the following parameters can be measured with high accuracy: Fat, Protein (Crude and True), Casein, Lactose, Solids-non-Fat, Total Solids, Urea, Free Fatty Acids, Freezing Point Depression, Citric Acid, pH, Homogeniser Efficiency, mono- and poly- unsaturated fatty acids, as well as total unsaturated and saturated fatty acids and sample temperature at intake.

Sample handling and maintenance

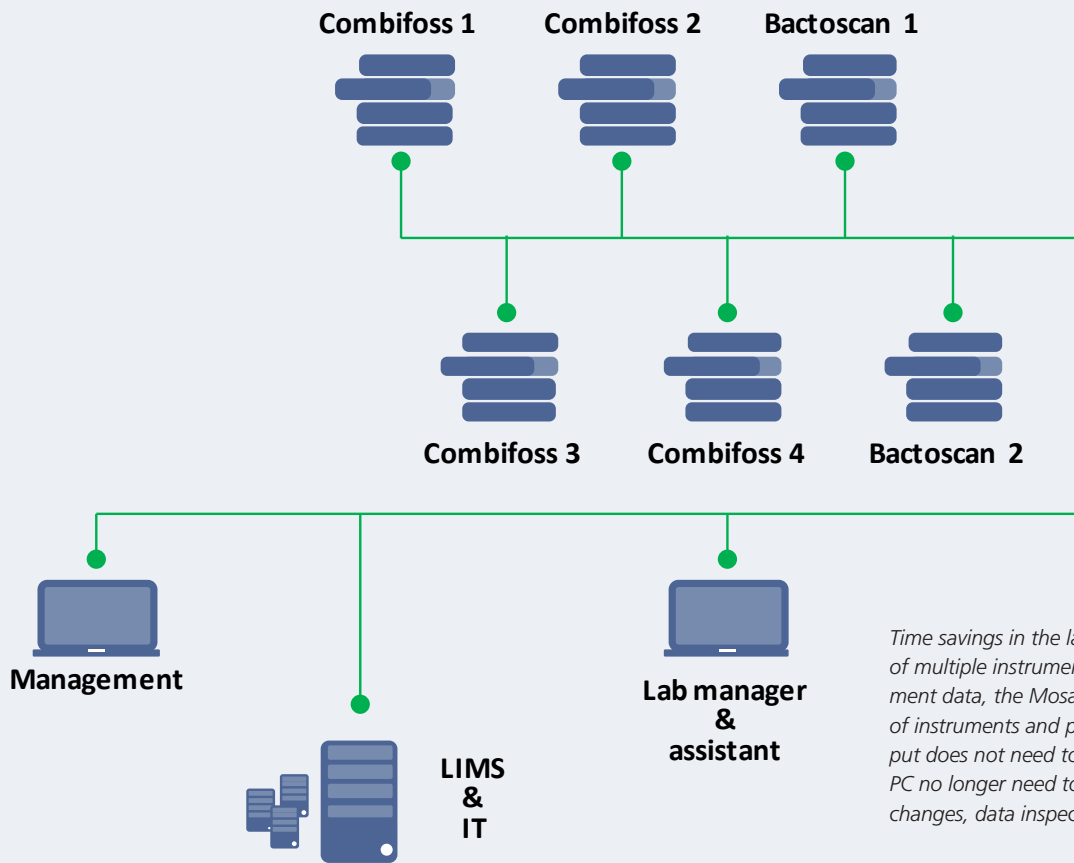
The sample ID system supplied with the CombiFoss 7 is designed to make the job of controlling samples and sample data as simple as possible. It supports both barcode and RFID sample id concepts. A modular design ensures ease of cleaning and maintenance including a sample conveyor that does not require use of compressed air. An intelligent pipette system improves safety by detecting closed lids on samples bottles.



MilkoScan™ 7 RM has a diamond cuvette backed by 10 years guarantee. Optics are optimized on the interferometer module increasing the signal/noise ratio and hereby ensuring the same high performance at all cadences and improving repeatability for minor constituents.



Up to 600 samples per hour handled with minimal cleaning and maintenance work



Time savings in the laboratory: with central configuration of multiple instruments and central access to all instrument data, the Mosaic software simplifies management of instruments and performance. Plus, sample throughput does not need to be interrupted since the instrument PC no longer need to be accessed for configuration changes, data inspection, data export etc.

Foss Integrator software

MilkoScan™ 7 is supported by a dedicated Foss Integrator™ software with an easy-to-use FOSS NOVA interface. Foss Integrator provides a wide range of quality assurance and GLP features. Foss Integrator shares the same interface for all CMT instruments.

Mosaic networking software for raw milk testing instruments

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 calibration updates quicker and considerably more convenient. If required, the software can also allow FOSS experts to access data for remote support via the internet.



MilkoScan™ 7 RM in a CombiFoss™ 7 configuration

Specifications MilkoScan™ 7 RM

Most of the calibrations are using multiple wavelengths selected freely from the entire Mid-IR spectrum in order to optimize robustness and accuracy. Compared to traditional filter calibrations, they are called full spectrum calibrations.

Performance

Carry-over for all components <1% relative

Component	Measuring range	Performance range	Repeatability	Accuracy Bulk	Accuracy Single cow
Fat	0-15%	2-15%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%
Protein	0-10%	2-10%	Cv < 0.5%	Cv < 0.9%	Cv < 1.5%
Lactose	0-10%	2-10%	Cv < 0.5%	Cv < 0.9%	Cv < 1.5%
Solids	0-20%	2-20%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%
Urea Patented	10-100mg/dl	10-100mg/dl	Sd < 1.5mg/dl	Sd < 3mg/dl	Sd < 3.5mg/dl
Citric Acid	0.1-0.5%	0.1-0.5%	Sd < 0.005%	Sd < 0.01%	Sd < 0.015%
FPD(Screening)	400-600 m°C	450-550 m°C	Sd < 0.5 m°C	Sd < 4 m°C	N/A

Novel parameters

Fatty acids profile	see the application note no. 64.
Ketosis screening (BHB, acetone)	see the application note no. 35
Untargetted screening raw milk (adulteration)	see the application note no. 5375

Application data

Analysis Capacity:	100, 200, 300, 400, 500 or 600 samples per hour
Sample intake:	5 mL
Required sample temperature:	37 - 42°C
Performance Specifications:	Full spectrum calibrations

Standards and Approvals

MilkoScan™ 7 RM is CE-labelled and complies with the following directives and regulations:

- EMC (ElectroMagnetic Compatibility) Directive 2004/108/EC
- LVD (Low Voltage) Directive 2006/95/EC
- Machinery Safety Directive 2006/42/EC
- Regulation (EC) 1272/2008 on classification, labelling and packaging of substances and mixture, CLP (EC)
- WEEE Directive 2002/96/EC
- Packaging and packaging waste Directive 94/62/EC
- REACH 1907/2006/EC

The MilkoScan™ 7 RM techniques comply with:

- ISO 9622 / IDF 141:2013
- AOAC official method 972.16

By using wavelengths from the entire Mid- IR spectrum for each component, calibrations are optimised in terms of robustness and/or accuracy (temperature, homogenization and humidity)

MilkoScan 7 RM as part of the CombiFoss 7

OFFER BETTER SERVICE WITH 19 PARAMETERS FROM A SINGLE SAMPLE IN SIX SECONDS, INCLUDING NEW DIFFERENTIAL CELL COUNT (DSCC)

- Give farmers better data for mastitis management with the first high-throughput analyser for simultaneous differential somatic cell count and total somatic cell count
- Avoid time and cost of separate equipment with one rapid analysis of up to 19 parameters in six seconds
- Build new business by offering advanced tests such as ketosis screening, free fatty acid profiling and untargeted adulteration screening

MORE RESULTS AT LESS COST WITH 7TH GENERATION COMBIFOSS TECHNOLOGY

- Achieve high uptime with new flow system technology including a diamond cuvette (backed by 10 year guarantee)
- Trust in reliability of results, whether running at 100 or 600 samples per hour
- Make cleaning easier and quicker with new modular sample conveyor

HIGHER PROFICIENCY AND LESS MAN HOURS WITH THE LATEST IN INSTRUMENT MANAGEMENT SOFTWARE

- Save your feet and save time by controlling multiple instruments from your desktop
- Avoid downtime by making upgrades and adjustments while instruments continue to run
- Perform operations in one go to reduce risk of human error and keep all data backed up in one place



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