CombiFoss™ 7 DC

Herd-improvement and payment testing in one integrated unit

The CombiFoss™ 7 DC seamlessly integrates MilkoScan™ 7 RM and Fossomatic™ 7 DC to test raw milk for up to 19 parameters, handling up to 600 samples per hour.

19 parameters from a single sample in six seconds
Unique test options such as differential somatic cell count allows you to give farmers more sophisticated data for improved mastitis management. Other advanced tests include ketosis screening and untargeted raw milk (adulteration) screening to help your customers meet modern challenges such as dairy herd productivity, feeding efficiency and protection of the milk supply.

More results at less cost with new technology
The latest in flow system technology including a diamond cuvette technology ensures maximum uptime. The cuvette element is backed by a 10 year guarantee and you can trust in the reliability of results, whether running at 100 or 600 samples per hour.

Optimise instrument management with FOSS digital services
Ensure consistent performance of all instruments in your network and avoid downtime by making upgrades and adjustments while instruments continue to run. Protect your database and calibration models with automatic back up of data.

Sample type
Raw cow's milk

Parameters
Somatic cell count, differential somatic cell count, 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

Technology
Fossomatic™ 7 DC: flow cytometry technology.
MilkoScan™ 7 RM: Fourier Transform InfraRed (FTIR) analysis

Approvals
SCC in compliance with ISO/IDF standards.
FDA/NCIMS and MicroVal (EURL) approved

Specifications for MilkoScan™ 7 RM

Most of the calibrations are using multiple wavelengths selected freely from the entire Mid-IR spectrum in order to optimise 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	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
Untargeted 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

Instrument management	
Networking software	FossManager™

Standards and Approvals

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

- EMC (ElectroMagnetic Compatibility) Directive 2014/30/EU
- LVD (Low Voltage) Directive 2014/35/EU
- 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).

Specifications for Fossomatic™ 7 DC

Performance	
Measuring range	0 – 10 mill cells/ml
Performance range	SCC and DSCC 50K – 1.5 mill
Repeatability	CV < 8% 50-99k SCC/ml CV < 6% 100-299k SCC/ml CV < 4% 300-499k SCC/ml CV < 3% 500-1500k SCC/ml DSCC Sd < 5,6% at 50K SCC Sd < 3,0% at 100K SCC
Accuracy	< 10% relative mean diff. from DMSCC (Direct Microscopic Somatic Cell Count)
Carry-over	< 1% relative
Sample types	Cow's milk
Application data	
Sample handling	• Unpreserved raw milk must be fresh and less than 3 days old • Preserved samples must be less than 4 days old • Preservative: Bronopol • Storage: Milk samples should be stored at 2-6 °C. During transportation the temperature of preserved samples may rise to room temperature (~25 °C)
Analysis capacity	100, 200, 300, 400, 500, or 600 samples per hour
Sample intake	2.5 ml (programmable 2.0 – 5.0 ml)
Working factor	150

Instrument management	
Networking software	FossManager™

Standards and approvals

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• LVD (Low Voltage) Directive 2014/35/EU
• Machinery Safety Directive 2006/42/EC
• Regulation (EC) 1272/2008 on classification, labelling and packaging of substances and mixture, CLP (EC)
• WEEE Directive 2012/19/EU
• Packaging and packaging waste Directive 94/62/EC
• REACH 1907/2006/EC

Fossomatic technology complies with

• AOAC
• ISO 13366-2 / IDF 148-2:2006
• Laser approval (FDA), IEC 60825-1
• FDA/NCIMS and MicroVal (EURL) approved