

## Installation requirements

	MilkoScan™ FT+	Conveyor 4000
Dimensions	H 60 cm	72 - 95 cm (adjustable)
(excl. Pipette Tower Table)	W 85 cm	230 cm (+85 cm per extension)
	D 68 cm	28 cm
Weight	120 kg	57 kg
Power Supply	95 - 130 or 195 - 260 VAC 50/60 Hz	95 - 130 or 195 - 260 VAC 50/60 Hz
Power Consumption	Max. 600 VA	Max 1000 VA
Compressed Air	None	4.0 - 7.2 Bar
Air consumption	-	0.2N litre per minute
Ambient Temperature	15 - 33° C	15 - 33° C
Ambient Humidity	<93% RH	
Pollution Degree	2	
Protection Degree	IP20	
Noise Level	<70 db(A)	

## Standard Delivery

- MilkoScan FT+ analyser
- PC with Windows® and Foss Integrator Software
- Standard accessories
- Pipette system
- Conveyor system

## Optional Accessories

- Ergonomic Monitor /Keyboard Arm
- System Table for analyser and PC
- Printer
- Software for CombiFoss operation
- Bar-code laser scanner for sample ID
- RFID tags reader for sample ID
- Bottle Rotation System for sample ID scanner
- Left and right-hand Side Extensions for Conveyor 4000
- Output Buffer for collection of analysis samples (include left and right-hand extensions)

## \*Patents

JP: 2547311; 3429000; 364029  
CA: 2,132,861; 2,178,627; 2,205,802; 2,212,358  
US: 5,252,829; 5,739,034; 5,771,096; 5,933,792  
NZ: 251676; 277479; 297385; 300915  
AU: 655110; 679821; 691067; 709619  
KR: 148750; 216227; 354852; 35876  
BR: PI9306145-5; PI9409293.6  
EP: 0629290; 0734523; 0796424; 080450

# FOSS

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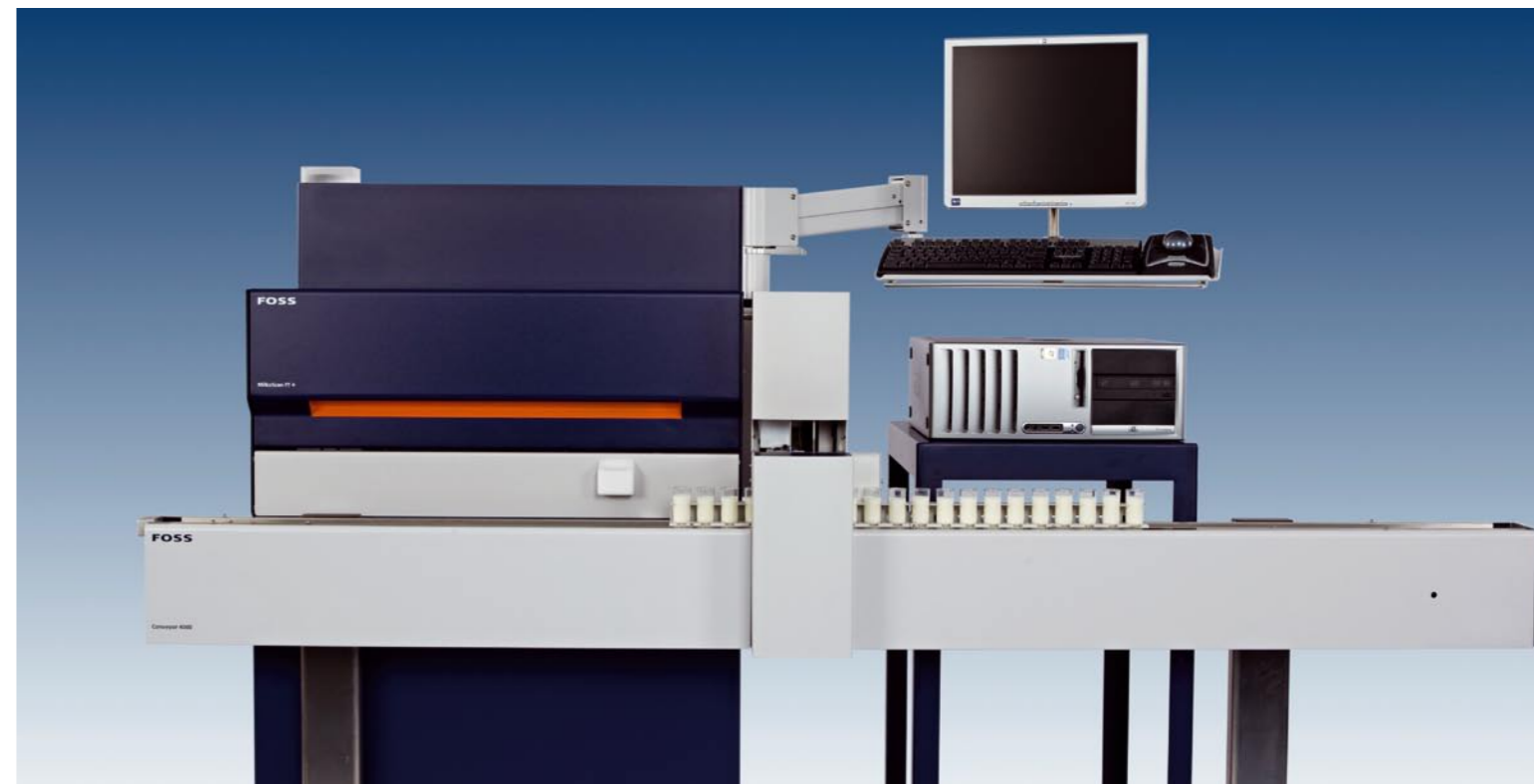
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# MilkoScan™ FT+



*Stay Ahead - and meet tomorrow's demands!*

The MilkoScan™ FT+ gives you the analysis performance you need to meet new demands for analysis efficiency, and it offers you exciting new business opportunities at the leading edge of milk analysis.

## Technology

The MilkoScan FT+ is a high capacity, fully automated IDF and AOAC compliant FTIR (Fourier Transform InfraRed) spectrophotometer. The FTIR technology provides potential for analysis of virtually any component in milk.

The new enhanced flow system and the self cleaning pipette make the system very reliable and enables analysis of even the most difficult milk samples such as dirty milk samples from sheep and goats without problems.

The MilkoScan FT+ employs a patented standardisation principle that makes it possible to transfer calibrations between instruments, reducing the need and cost of calibration work considerably.

## New features

- Unique performance – up to 600 samples an hour
- More business opportunities like profiling milk samples according to fatty acid content and enhanced performance on free fatty acids analysis
- Efficient flow system and self-cleaning pipette handle even the most difficult samples - trouble free
- Flexibility to analyse milk from buffalo, sheep, goats and of course cows
- Built-in sample temperature monitoring ensures data credibility on critical components
- Automatic traceability of results
- WinISI calibration toolbox
- RFID (Radio Frequency IDentification) reader for sample ID

Dedicated Analytical Solutions

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## 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.

## The self cleaning pipette

The MilkoScan FT+ uses an extraordinary self cleaning technique to ensure high up-time and optimal performance. The pipette is equipped with a filter to prevent dirt and other impurities from getting into the flow system. An efficient wiper removes dirt and the milk film from the pipette after a sample intake. When a rinse is performed the wiper is flushed and the dirt or remaining milk fat will be removed from the flushing chamber. In addition there is an automatic back-flush of the pipette.

With the MilkoScan FT+ you can always be certain to analyse representative samples with negligible carry-over, every minute, hour and day of operation.



## Approvals/Standards

MilkoScan™ FT+ is CE labeled and complies with the following Directives:

- Electromagnetic Compatibility Directive 2004/108/EC
- Machinery Safety Directive 2006/42/EC
- Low Voltage Directive 2006/95/EC
- Reagents Labelling Directive 99/45/EC
- RoHs Directive 2002/95/EC
- Packaging and Packaging Waste Directive 94/62/EC and amendment
- WEEE Directive 2002/96/EC

IEC 60825-1 Laser approval (FDA)

The MilkoScan™ FT+ techniques comply with

- IDF standard 141C: 2000
- AOAC official method 972.16

## Conveyors

The Conveyor 4000 has an impressive track record and is highly appreciated by our customers. When re-testing is needed the conveyor automatically reverses the sample rack, still maintaining sample temperature. The correct sample temperature is extremely critical when analysing special components like Urea and FDP. In case you want the racks with samples to be put aside after analysis, you can add the output buffer to the conveyor.

The conveyor can also be extended at both ends.

A more basic option is the Conveyor 5000.

## Sample ID

For both Conveyor 4000 and 5000 there is a range of barcode readers available. A RFID (Radio Frequency Identification) reader, the newest technology within readers, can be used with Conveyor 4000. This offers enhanced sample traceability opportunities for your laboratory.

## CombiFoss™

When you combine the MilkoScan FT+ unit with a Fossomatic™ FC, a CombiFoss™ FT+ is formed, using the same conveyor, pipette and PC as the stand-alone instruments. This offers you a lot of flexibility, e.g. you can start with just a MilkoScan FT+ and later add a Fossomatic FC to form a CombiFoss.

## Sample data

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

## Performance Specifications:

Full spectrum calibrations

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

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%
Total Solids	0 - 20%	2 - 20%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%
Urea Patented *	10 - 100 mg/dL	10 - 100 mg/dL	Sd < 1.5 mg/dL	Sd < 3 mg/dL	Sd < 3.5 mg/dL
Citric Acid	0.1 - 0.5%	0.1 - 0.5%	Sd < 0.005%	Sd < 0.01%	Sd < 0.015%
FPD(Screening)	450 - 600 m°C	450 - 550 m°C	Sd < 0.5 m°C	Sd < 4 m°C	N/A

Calibrations Using **IDF** and **AOAC** approved wavelengths

Component	Measuring range	Performance range	Repeatability	Accuracy Bulk	Accuracy Single cow
Fat (A)	0 - 15%	2 - 15%	Cv < 0.5%	Cv < 1.0%	Cv < 2.0%
Fat (B)	0 - 15%	2 - 15%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%
Protein	0 - 10%	2 - 10%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%
Lactose	0 - 10%	2 - 10%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%
Solids	0 - 20%	2 - 20%	Cv < 0.5%	Cv < 1.0%	Cv < 1.5%

Carry-over for all components: <1% relative

Typical results for some of the additional parameters available, Full spectrum calibrations

Component	Calibration range	Validation range	Repeatability	Accuracy Bulk
Casein	2.17 - 3.24%	2.17 - 3.24%	Sd < 0.003	Sd < 0.03
Free Fatty Acids	0.072 - 10.04 mmol/10 kg	0.49 - 6.63 mmol/10 kg	Sd < 0.12	Sd < 0.35
C:16_0	0.33 - 2.03%	0.33 - 2.03%	Sd < 0.03%	Sd < 0.09%
C:18_0	0.15 - 1.01%	0.15 - 1.01%	Sd < 0.007%	Sd < 0.05%
C:18_1	0.51 - 1.18%	0.51 - 1.18%	Sd < 0.02%	Sd < 0.05%
Total saturated fatty acids	0.78 - 4.35%	0.78 - 4.35%	Sd < 0.02%	Sd < 0.05%
Total unsaturated fatty acids	0.291 - 2.47%	0.291 - 2.47%	Sd < 0.013%	Sd < 0.04%
Mono unsaturated fatty acids	0.242 - 2.49%	0.242 - 2.49%	Sd < 0.02%	Sd < 0.06%
Poly unsaturated fatty acids	0.025 - 0.172%	0.025 - 0.172%	Sd < 0.006%	Sd < 0.014%

Reference methods:

Fat: Röse Gottlieb and Gerber method, Protein: Kjeldahl and Amido Black method, Lactose: Enzymatic method (BM), Solids: Evaporation, Urea: Diff.Ph, Citric Acid: enzymatic method (BM), FPD: CryoScope, Casein :Kjeldahl, FFA: BDI, Fatty Acids : GC

Calibration method is PLS for all calibrations. Specifications cover preserved and unpreserved cow's milk samples. The specified performance relates to the recommended 5 mL sample intake and a capacity of up to 600 samples per hour.