

Specification CombiScope FTIR 600/300 HP/CP

Sample data

Analysis Capacity	600, 300 samples/hour instrument speed
IR principle	Rotation scanning mechanism, Fourier Transform Infra Red
Somatic Cell counter principle	LED flow cytometer
Sample intake	6 ml
Required sample temperature	37-42 degrees Celsius

Instrument data

Operating system	Windows 7
Operating interface	Touch screen, keyboard, mouse
Data transfer	UTP
Weight	Approx. 330 KG
Dimensions	230 X 80 X 70 cm
Type	Desk top
Power Consumption	750 nominal 1200 VA Max
IP classification	IP22

Performance specifications FTIR Full spectrum Calibrations models

Component	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<1.0%	Cv<1.5%
Lactose	0-10%	2-10%	Cv<0.5%	Cv<1.0%	Cv<1.5%
Total solids	0-20%	2-20%	Cv<0.5%	Cv<1.0%	Cv<1.5%
NPN-CU	10-100mg/ml	10-100 mg/ml	Sd<1.5mg/dL	Sd<3mg/dL	Sd<4 mg/dL

Additional test results full spectrum calibration models

Unit, Fatty acids in milk	Range	SD(y)	SECV	RPD
Saturated %mm	0.13 - 4.09%	0.65	0.031	20.9
Unsaturated %mm	0.06 - 1.98%	0.29	0.035	8.5
Poly Saturated %mm	0.05 - 1.76%	0.25	0.034	7.6
Mono Saturated %mm	0.01 - 0.24%	0.04	0.017	2.5
C16:0 %mm	0.06 - 1.88%	0.28	0.042	6.6
C18:0 %mm	0.02 - 0.83%	0.14	0.043	3.3
C18:1 trans %mm	0.04 - 1.53%	0.21	0.035	6.0

tekstSECV = standard error of cross validation, cyclic, leaving out #1 sample at the time. RPD = SD(y)/SECV

IDF and AOAC approved methods

Component	Range	Performance range	Repeatability	Accuracy bulk	Accuracy single Cow
Fat (A)	0-15%	2-15%	Cv<0.5%	Cv<1%	Cv<2.0%
Fat (B)	0.15%	2-15%	Cv<0.5%	Cv<1%	Cv<1.5%
Protein	0-10%	2-15%	Cv<0.5%	Cv<1%	Cv<1.5%
Lactose	0-10%	2-15%	Cv<0.5%	Cv<1%	Cv<1.5%
Solids	0-20%	2-20%	Cv<0.5%	Cv<1%	Cv<1.5%

Somatic Cell counting

Range 0-10000K cells/ml, performance range 0-2000K cells

Level	Repeatability	Accuracy
100K cells/ml	Cv<6%	<10%
100K-500K cells/ml	Cv<4%	<10%
500K-2000K cells/ml	Cv<3%	<10%

Delta Instruments

Delta Instruments, an Advanced Instruments company, is a well-established manufacturer of rapid routine analytical instrumentation for the analysis of milk and milk derivatives. Our product portfolio includes milk analyzers for the dairy industries and for payment and dairy herd improvement laboratories (central milk testing), all of the same high quality. The multidisciplinary teams within Delta Instruments in co-operation with other companies have developed new technologies that will meet today's requirements in central milk testing laboratories. Delta Instruments teams are committed to the Six Sigma method. This method is used in the development process of the new Delta Instruments CombiScope. For over 25 years the Delta Instruments team has focused on customer satisfaction, technological progress and premier quality.

Delta Instruments B.V. is NEN-EN-ISO 9001:2008 certified.



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Analytical Science in Dairy



DeltaInstruments
An Advanced Instruments Company

CombiScope FTIR

600/300 HP/CP



Analytical Science in Dairy



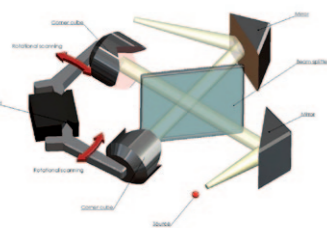
CombiScope FTIR

The Delta Instruments CombiScope FTIR 600 series, High Performance and Controlled Performance offer the highest available speed in routine analysis of cow, goat, sheep and buffalo milk. The system consists of two high speed routine analyzers. The LactoScope FTIR 600 for measuring the chemical composition and the SomaScope LFC 600 for counting Somatic cells in raw milk at a speed of 600 samples per hour.

The new Delta Instruments CombiScope offers new business opportunities for your laboratory. The latest technology of Infrared Fourier transform and LED-Flow cytometry is used, which created a new level of accuracy, speed and user friendliness with low cost of ownership.

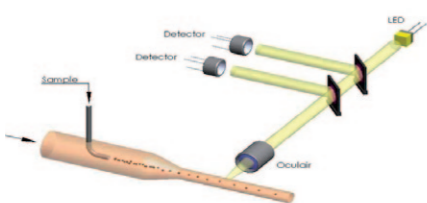
Technology behind success

The Intelligent Control System (ICS) watches over the critical to quality parameters of the analytical process and supports the operator to make the daily routine analysis as efficient as possible. Intelligent diagnostic tools (IDT) support the operator in analyzing the toughest samples, so any obstacle can be overcome.



A rotary scanning mechanism with a lifetime guarantee combined with the maintenance free diode laser, is the heart of the Infrared Fourier transform process of the LactoScope FTIR 600. This unique patented concept offers guaranteed component application transferability between instruments. A software tool validates the condition of the spectrometer, making use of the fact that water molecules always appear at a specific frequency in the spectrum. Consumable costs are not associated with validating the optical system of the FTIR.

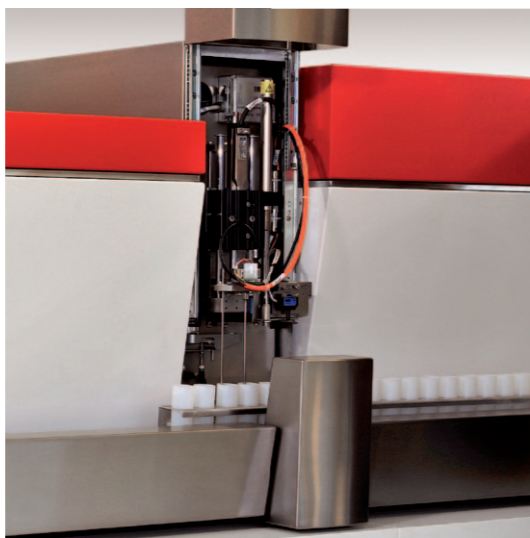
The LED-flow cytometer is the heart of the SomaScope LFC 600. With its unique Light Emitting Diode (LED) source, the best of modern technologies are used to provide precise and stable results. The expected lifetime of the LED source is the lifetime of the instrument. These combined technologies of LED- and flow cytometry result in high uptime and a lower need for calibration intervals.



For optimum control of the analytical process the double detector system collects counting data on two different wave lengths. This system produces data that give the operator direct information about critical to quality parameters of the process, such as sample quality, staining solution quality and instrument adjustment.

Standard Delivery

- CombiScope HP or CP
- PC with CombiScope software
- Accessories, start up kit
- All known and future calibrations included, such as: Fat, Protein, True protein, Non Protein Nitrogen, Lactose, Solids, Solids Non Fat, NPN calculated urea, Free Fatty acids, Citric acid, Adulteration screening package, Quality package and Fatty acids profiles. (Optional) FPD and Conductivity (included when FPD option is chosen).



HP and CP series

Two series of FTIR are developed. The High Performance (HP) and the Controlled Performance (CP). Both series can be supplied at a speed of 600 or 300 samples per hour.

The HP series is designed for the routine lab that makes use of operators, working directly with the instrument. The design of the CombiScope ensures a user-friendly working environment. The combination of the ergonomics of the CombiScope, combined with the user-friendly software

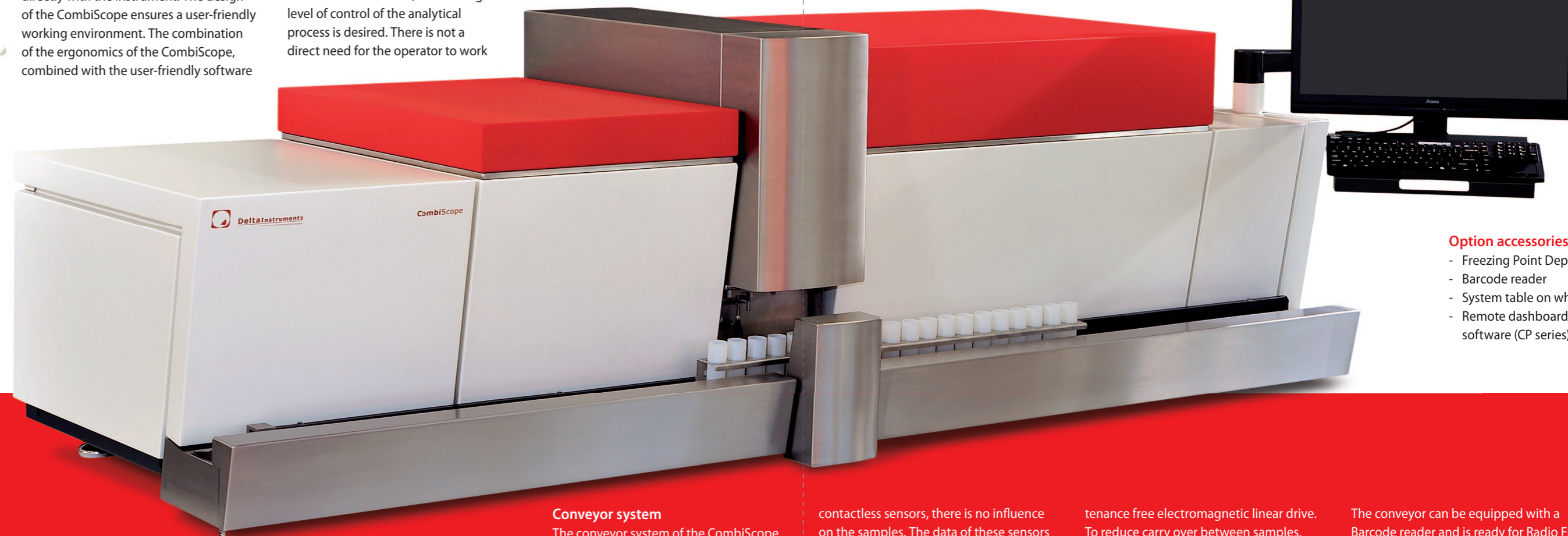
and touch screen operation makes it a pleasure to work with this quality instrument. The intelligent control system ICS and Intelligent diagnostic system IDT are focused, to directly support the operator working effectively with the equipment.

The CP series is designed for the highly automated routine lab, where a high level of control of the analytical process is desired. There is not a direct need for the operator to work

directly in front of the instrument. The CP series have a remote dashboard on a separate (central) computer. Critical to quality parameters (CTQ) of the analytical process are displayed on the remote dashboard. During the analytical process of tough samples, the ICS and IDT are able to work together, which means that any obstacle can be overcome automatically.

These preprogrammed operational procedures can be activated without intervention of the operator. The CP series are supplied with a built-in CCD camera in the LED-flow cytometer, to directly monitor the analytical process. Imaging software monitors the flow cytometer process of the SomaScope and reports directly to the dashboard.

The LactoScope of the CP series, monitors next to other CTQ parameters the pumped volume and density of the sample. This to make sure the sample is in the correct physical state to be analyzed.



Option accessories

- Freezing Point Depression
- Barcode reader
- System table on wheels
- Remote dashboard PC including software (CP series)

Conveyor system

The conveyor system of the CombiScope series HP and CP includes various sensors for optimum control of the analytical process. The sample temperature is measured by an Infrared temperature sensor. The sample volume is measured by an Acoustic level sensor. Due to these

contactless sensors, there is no influence on the samples. The data of these sensors is stored in the database, together with the sample parameters. A back flush system is cleaning the pipette. At given intervals or on request the pipette can be back flushed, even while running samples. Furthermore the pipette unit has a main-

tenance free electromagnetic linear drive. To reduce carry over between samples, a linear pulse is generated in the up movement of the pipette to remove sample drops or other residues. Since the conveyor can move backwards automatically, reanalysis of samples can be done easily.

The conveyor can be equipped with a Barcode reader and is ready for Radio Frequency Identification (RFID) for optimum sample identification and traceability. The conveyor system is prepared for interaction with laboratory automation.

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