



# Sample Automation

● for minispec mq and mq-one Series



Let the sample automation  
do your routine work.

● **Sample automation for the minispec mq and mq-one series**

This new easy to use, cost-effective system brings sample automation to routine minispec applications, including complex Solid Fat Content (SFC) analysis.

Now, thanks to quick sample exchange times that maximize throughput and increased reliability in minispec measurements, productivity is significantly boosted. Just load, start and walk away!

the minispec Sample Automation system is available as a standalone accessory to existing minispec systems from the mq and mq-one Series, or as a packaged system with a new minispec spectrometer.

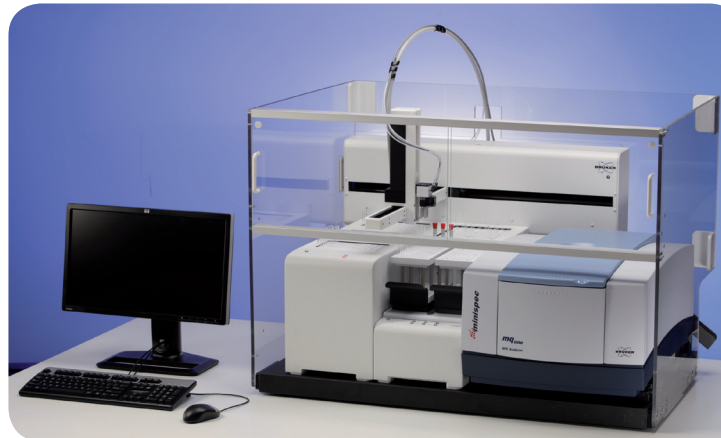
**Key Advantages**

1. Single supplier solution: minispec and Sample Automation system both provided by Bruker BioSpin. Service and support by Bruker BioSpin or local Bruker representative.
2. SFC Sample Automation system automatically and accurately controls tempering times delivering results in strictest accordance to SFC International Standard Methods. (AOCS, ISO)
3. Maximize throughput by automated nighttime & weekend operation
4. Receive fully reproducible and traceable results - automatically saved & stored by the system
5. 21 CFR Part 11 compliant

# ● the **minispec Sample Automation Offers a New Dimension in Options**

## **Sample Automation Set-up**

- x-y-z sample changer mounted on a robust platform that can hold minispec, racks and tempering devices (optional, depending on application)
- TÜV approved and conform to European, American and Canadian regulations, CE, UL, CSA (with and without safety housing)
- Optional (but recommended) safety housing including sliding doors and locks
- Optional light tower showing the automation system status by colored lights (green, yellow, red) already from a distance



## **Quick and Convenient Sample Insertion**

- Input and output racks with sensors that detect tray status (software supported)
- Special versions of trays adapted for the different applications
- The software can handle the two trays as combined or separate input/output blocks.
- „Quick Start“ modus available to make sure that the sample changer moves newly introduced, cooled samples immediately to a cooling unit (e.g. cooled margarine at 5° for droplet size analyzer automation)



## **Tempering Options/Further Assemblies**

- Heating and cooling devices based on Peltier Technology
- Tempering blocks:  $\pm 0.1^{\circ}\text{C}$  precision
- Heating only devices available
- Max. temperature range: 0 ... 100°C
- Handles up to 9 measurement temperatures (optional)
- Tempering devices are also available without the robot
- Barcode reader (optional)
- HT-version (high temperature) available to upgrade a 10mm polymer automation system to run high temperature analysis with sample temperatures up to 200° C in a fully automated mode.



## ● Automating Solid Fat Content (SFC)

### Maximized productivity from the world leader in SFC measurements

By automating tempering times <sup>the</sup>minispec Sample Automation system ensures highly accurate sample temperatures delivering results in strictest accordance with SFC International Standard Methods.

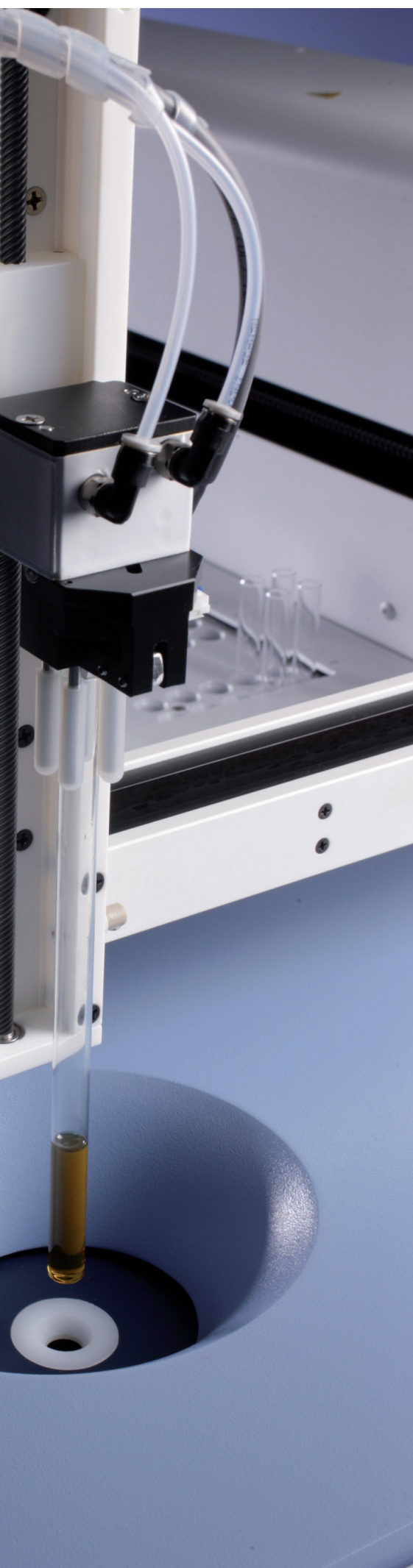
#### Automated SFC Measurements Include:

- Crystallization kinetics and curve plotting (SFC versus time)
- Visual display of the melting curves of products
- Derived parameters such as slip melting point and dropping point can be calculated using TD-NMR SFC values
- Automatically calculated averages
- Fast SFC measurement option with automatic data correction

#### Sample Automation for SFC Features:

- New software package integrates Bruker's innovative experience with SFC Automation knowledge of collaboration partner comicon GmbH, Hamburg, Germany
- Two input racks for 10 mm tubes with 60 tube positions each
- Waste position for easy disposal of post-analysis sample tubes
- Three tempering blocks of 60 positions for 100°C/80°C, 60°C and 0°C
- Six tempering blocks of 10 positions each for heating and cooling
- Block cooling by modern Peltier Technology, including purge option
- SFC calibration sample positions: 0%, ca. 30% and ca. 70% SFC included in the SFC automation system
- Fully automatic Daily Check functionality





## ● Further Automation Portfolio for minispec Sample Automation

### Food (10 mm OD tubes)

- G-Var droplet size analyzer
- Total oil / fat analyzer for chocolate
- Oil & moisture in small seed, nuts, etc

### Polymer (10 mm OD tubes)

- Xylene soluble content in polypropylene
- Density in polyethylene
- Rubber content in ABS, polystyrene
- Cross-linking in elastomers

High temperature Version (HT) with sample tempering up to 200° C available, too.

### Body care (26 mm OD tubes)

- Toothpaste analyzer

### R&D (10 mm OD tubes)

- Contrast agent analysis



minispec sample automation for Toothpaste Analyzer (for 26mm OD tubes)

# Increasing TD-NMR Efficiency With the New minispec Sample Automation Software

The minispec Sample Automation software is a feature-packed easy-to-use solution that provides significant flexibility, usability and the performance required to maximize your lab efficiency by automating your TD-NMR minispec applications.

Its practical software design and dedicated feature options include:

- Existing customer TD-NMR methods are easily added and implemented
- Different TD-NMR methods can all run simultaneously
- Sample priorities can be assigned, e.g. with „Quick Start“ mode
- Choice of rack combinations with in-position/out-of-position sensor
- Error management highlights deviations or errors by adding colors to the results boxes

## the minispec Sample Automation Software

- Automated Daily Check function ensures consistent operation
- Automatic plotting of bath temperatures
- Accurate monitoring of tempering times and temperatures with out-of-limit warnings
- All common International Standard Methods are supported
- Graphical display of data with calculation options and error handling
- PC controlled: Windows 7 / 32 or 64 bit Software

1. Tube				2. Tube			
Temperature	Time (min)	Delay (min)	Parameter	Temperature	Time (min)	Delay (min)	Parameter
80.0°C	5	0	-	80.0°C	5	0	-
60.0°C	10	0	-	60.0°C	10	0	-
0.0°C	60	0	-	0.0°C	60	0	-
10.0°C	30	0	-	20.0°C	30	0	-
Measurement	-	-	SFC_RESULT	Measurement	-	-	SFC_RESUL
Result	-	-	NL_TEMP(-2)]-[SFC_RESULT(1)]	Result	-	-	NL_TEMP(-2

Clear method control: all temperature steps are clearly defined and tempering steps can always be added, modified or deleted. The various SFC measurement temperatures / tubes are pre-defined, too.

Date	1. value	2. value	3. value
03.04.2013 13:29	0.08	30.80	72.59
03.04.2013 13:24	-0.36	30.35	72.19
03.04.2013 13:22	-0.12	30.97	72.26
03.04.2013 13:17	0.47	30.57	72.37
03.04.2013 13:13	0.28	30.70	72.36
03.04.2013 13:06	-0.41	30.33	72.15
03.04.2013 13:05	0.21	31.13	72.41
03.04.2013 13:04	0.46	30.94	72.28
03.04.2013 13:00	-0.43	30.84	71.87
03.04.2013 12:51	0.45	30.66	72.01
03.04.2013 12:47	0.20	30.89	71.87
03.04.2013 12:44	-0.25	30.79	72.54
03.04.2013 12:39	-0.02	31.01	72.09

The software archives all former Daily Check results. Green arrays indicate that SFC results were within limits.

Method definitions

- DGF C-IV 3g Parallel
- DGF C-IV 3g Serial
- ISO 8292 (1991) Cocoa butter
- ISO 8292 (1991) Other Products
- ISO 8292 (1991) Palmol
- ISO 8292 (1991) Tallow
- Schnellmethode parallel
- Schnellmethode serial
- Sequenz

Method: DGF C-IV 3g Parallel

Priority: Middle priority

Processing: Time controlled processing

Number of measurements: 2

Decimal numbers: 2

SFC:

Time optimized:

Quick start:

minispec-parameters

Method: D:\apps\SFCApp\ActiveX.app

Number of scans: 32

Recycle Delay time (ms): 2000

1. Tube				2. Tube			
Temperature	Time (min)	Delay (min)	Parameter	Temperature	Time (min)	Delay (min)	Parameter
80.0°C	5	0	-	80.0°C	5	0	-
60.0°C	10	0	-	60.0°C	10	0	-
0.0°C	60	0	-	0.0°C	60	0	-
10.0°C	30	0	-	20.0°C	30	0	-
Measurement	-	-	SFC_RESULT	Measurement	-	-	SFC_RESUL
Result	-	-	NL_TEMP(-2)]-[SFC_RESULT(1)]	Result	-	-	NL_TEMP(-2

Setup of various application methods. All International Standard Methods are pre-defined. Customer specific methods can easily be added / modified. The defining of methods is very flexible. SFC as well as non-SFC methods can be added. The system can run different methods in parallel.

# Bruker

- A Market Leader in Life Science and Analytical Systems.



**For more than 50 years Bruker has dedicated itself to the development and construction of powerful measurement instruments, paving the way for our customers' progress in research and industry. Today we are the world's leading provider of analysis technologies. Over 6,000 employees worldwide constantly strive to satisfy our customers' needs and to extend the limits of scientific, industrial and medical analysis.**

## **Technology that supports**

These exceptional technical capabilities enable our customers to decrease time, budget and performance limitations in favor of enhanced work results. Bruker's personalized full service does the rest to support the users by granting optimal working performance and allowing them to concentrate on their core business.

## **Unique NMR heritage**

Founded by NMR pioneer Prof. Günther Laukien, Bruker's tradition is deeply linked to that of NMR spectroscopy. In the 1960s the enterprise was the first to commercially build NMR spectrometers, making them first accessible to a wide range of scientists and later also to industries. Bruker thus laid the foundation for modern material development as well as significant medical progress based on NMR.

## **Always the right solution**

Still today Bruker maintains its unique technical expertise as well as its stated goal to provide the best solution for every analytical task. Our portfolio covers the whole spectrum of advanced measurement technologies – not only in its breadth but also in its depth: Our products range from the handiest devices for everyday tasks all the way up to the highest end of research systems.

## **Our standing commitment**

What all this results in for us is not only an excellent reputation among our customers, but also the great feeling of playing an important role in something no smaller than the progress of natural science and human welfare. Therefore, we consistently endeavor to continue along our path as the number one partner in scientific and industrial analysis worldwide.

## **Bruker Advanced Customer Services**

Bruker's comprehensive services ensure your success through performance, expertise and reliability. Bruker offers comprehensive support in every discipline including Information and Communication, Consumables and Spares, Support and Upgrades, as well as Education and Training. Our global organization runs offices in every major area of the world providing sales, applications, and engineering support for all our products. Whatever you need, wherever you need it – we are there for you!



#### Technical data - Example: SFC automation \*

<b>Dimensions: (incl. safety housing &amp; light tower)</b>	1.20m x 0.90m x 1.05m (width x depth x height)
<b>Weights:</b>	
Autosampler plus Base (no safety housing)	26 kg
Tempering Bath for SFC / 3 Temperatures	31 kg
Tempering Bath for SFC / 6 Temperatures	29 kg
<b>Input Voltage:</b>	110V / 230V
<b>Tempering Baths Accuracy (SFC):</b>	0.1 °C
<b>System Requirements:</b>	minispec mq series or minispec mq-one
<b>Available Tube Diameters</b>	10 mm (SFC, droplet size, polymer), 26mm (toothpaste)
<b>Racks and Sensors (supplied):</b>	1 x Input Rack 1 x Output Rack
<b>SFC System Characteristics:</b>	
Waste Position	Included (for SFC Operation)
Loading Capacity / Throughput	120 tubes/batch
SFC Temperatures	9 with 10 positions minimum
<b>Safety housing (optional, recommended)</b>	Including sliding doors with locks and emergency stop button
<b>Light Tower (optional)</b>	Green/yellow/red status indicator lights

\*other sample automations - e.g. for polymer applications, for droplet size application or for toothpaste application have same outer dimensions and same or smaller weight.