



EVOQ GC-TQ Speed

- Increased scan speed without compromising on sensitivity and ion ratio precision

EVOQ GC-TQ Speed

Speed Enables Sensitivity for Residues and Contaminants



Using the fastest performing GC-TQ system will allow rapid and most accurate screening of samples ensuring labs to keep pace with growing numbers of highly complex samples.

EVOQ GC-TQ Speed is the right solution to achieve greater insight into samples with extremely selective and sensitive data for quantitative and qualitative information and will take you to a whole new level from the method setup to the data evaluation and instrument

maintenance. Its structural characteristics such as a 180° curved collision cell and lens-free ion optics eliminates interferences of co-eluting compounds and neutrons, minimize the need of maintenance and maximize the ease of use.



Flexibility

Multiple autosampler options possible, from routine analysis to high throughput.

Robustness

Lens-free design, curved quadrupoles.

Sensitivity

Within high level matrix samples. Due to the larger ion volume, the sensitivity is maintained even with complex matrices.

Faster scanning

Providing shorter run times or more MRM transitions, without compromising sensitivity or ion ratio aspects.

Unrivaled Performance



Speed combined with versatility



Productivity

- High capacity of vacuum pump (Dual stage: 310 L/s, 400 L/s)
- Double filaments with electron-bouncing technology in the ion source



Sensitivity

- Multi-axis (360°) noise cancelling on ion path
- Efficient ion transmission in the lens-free design
- Helium focusing in the heated ion guide (active focusing)



Ease of Use

- CBS (Compound Base Scanning) for auto-fill of scantimes for the optimized MRM transitions
- Simplified parameter setup by the RF-only collision cell and lens-free ion optical path



Robustness

- High capacity turbo-pump standard provides unique performance
- Heated ion guide for prevention of ion condensation
- Ultra-inert materials in the ion source



Reproducibility

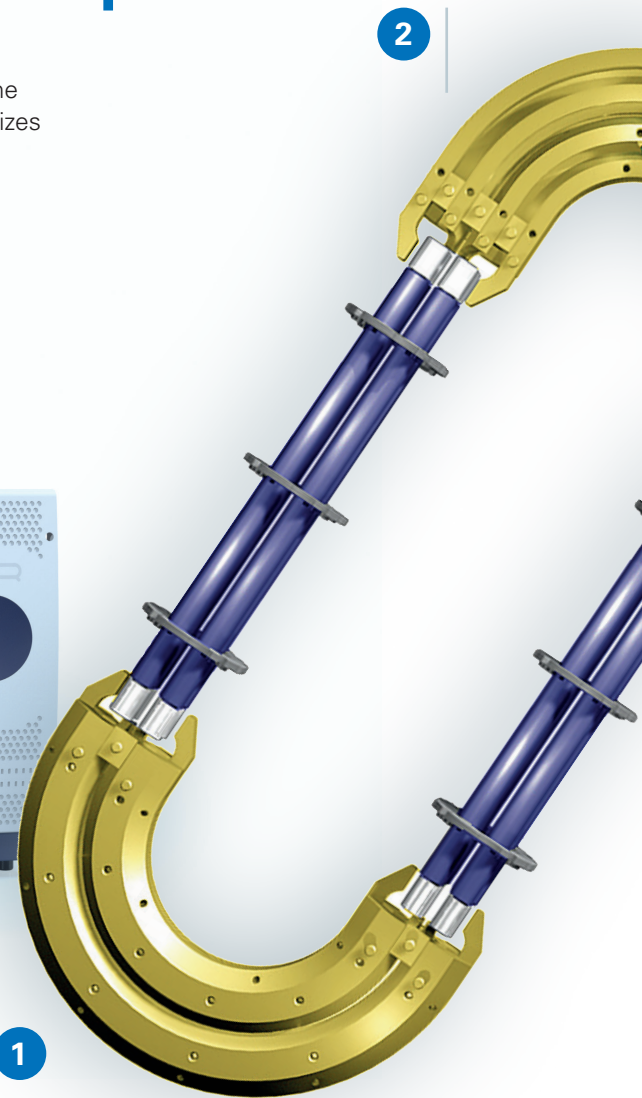
- Minimized contamination and reproducible fragmentation with the highly robust ion source



Even after four decades GC-MS/MS is still developing, EVOQ GC-TQ Speed is a breakthrough on faster analysis remaining sensitivity and robustness.

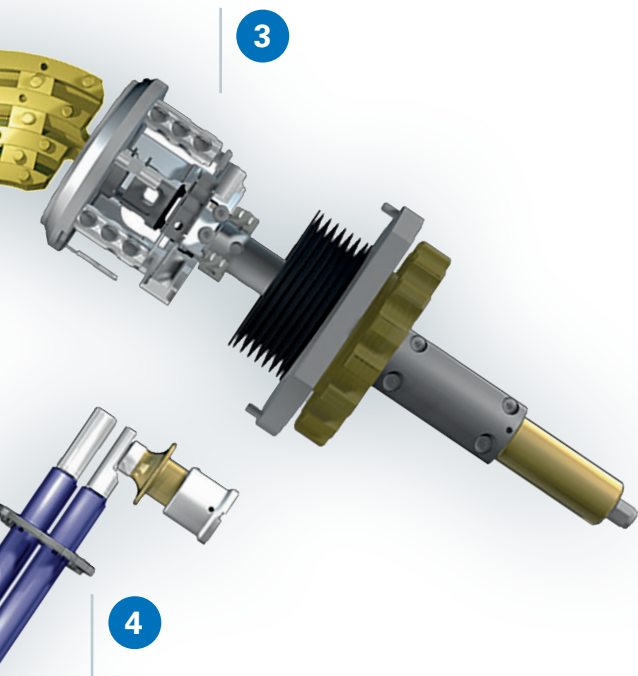
The Real Truth in Your Sample

The patented lens-free design in the ion optical path simplifies the tuning process and the method setup for ease of use and minimizes the contamination for low maintenance.



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GC-MS/MS is no longer about specifications, but about solution performance, especially in difficult matrices.



① 180° Curved Collision Cell

The unrivaled design of the collision cell helps getting easy information that is helpful for the identification and quantitation of even trace-level compounds. The fast moving ions coming from the first quadrupole collide with the collision gas (usually argon) and get dissociated while interfering neutrals are removed in the 180° curved collision cell. This reduces the background noise and increases the signal-to-noise ratio, which means it efficiently improves MRM sensitivity in real sample matrix.

② Active Focusing Ion Guide

The unique ion-path and curved collision cell design results in virtually zero neutral ions or chemical noise reaching the detector. The ion guide is also heated by the source at 135 °C to prevent the ions from condensing and contaminating the guide. Active focusing uses helium molecules to increase ion transmission. The helium gas provides a more focused ion current that enhances the sensitivity.

③ Axial Ion Source

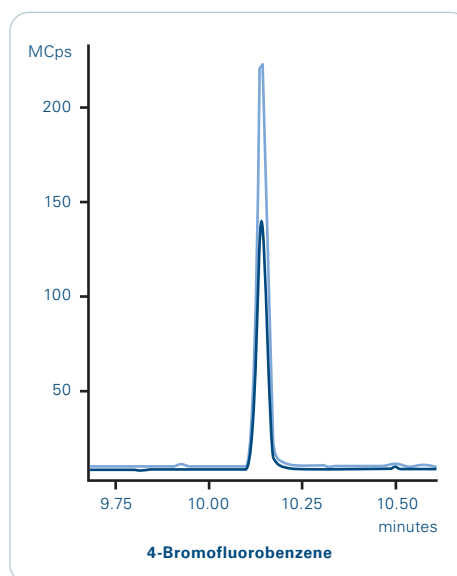
The axial ion source generates ions on-axis from the column. Its unique inert lens design reduces contamination from the sample matrix for increased sensitivity. It utilizes double filaments with electron-bouncing technology to increase productivity lessening the instrument downtime for the maintenance.

The most popular ionization mode, EI (Electron Ionization), is supplied as standard.

④ EDR (Extended Dynamic Range) Detection

System Extended Dynamic Range (EDR) automatically adjusts the detector for the best signal-to-noise ratio (S/N) and optimizes electron multiplier (EM) voltage for every scan.

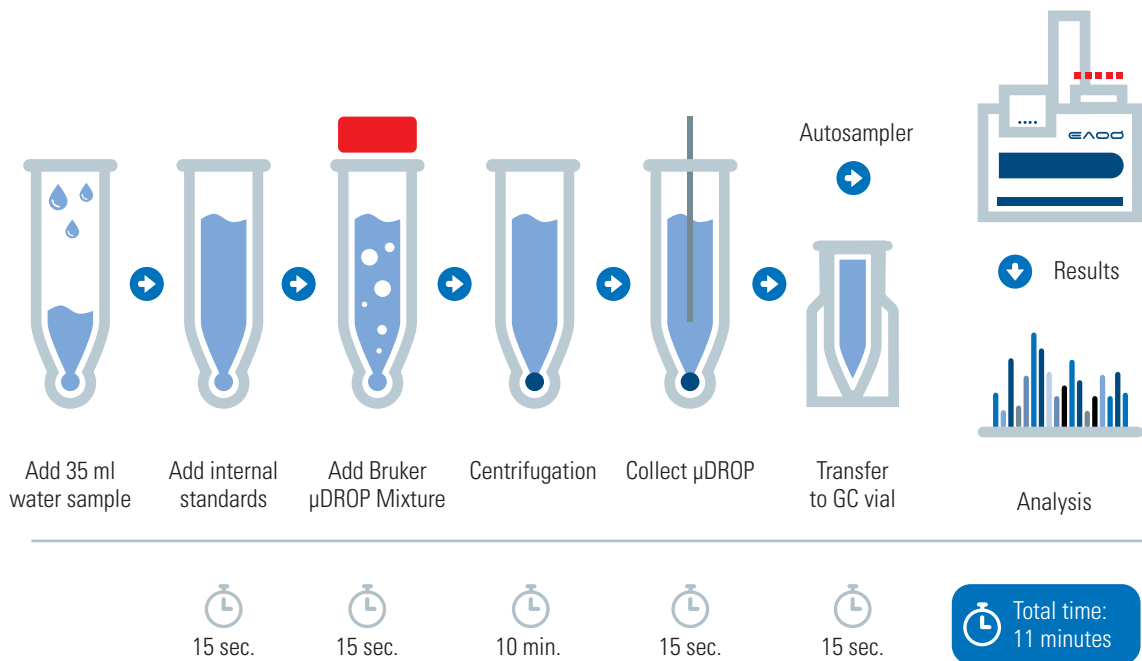
When injecting large quantities of compounds, the detector may become "overloaded" resulting in poor linearity as the dynamic range of the instrument is not reached. The EDR allows a wider dynamic range for real samples where it is unpredictable how much of the analytes will be present.



Effect of the active focusing ion guide (see 2). Analysis of 4-Bromofluorobenzene; light blue: Helium on, dark blue: Helium off.

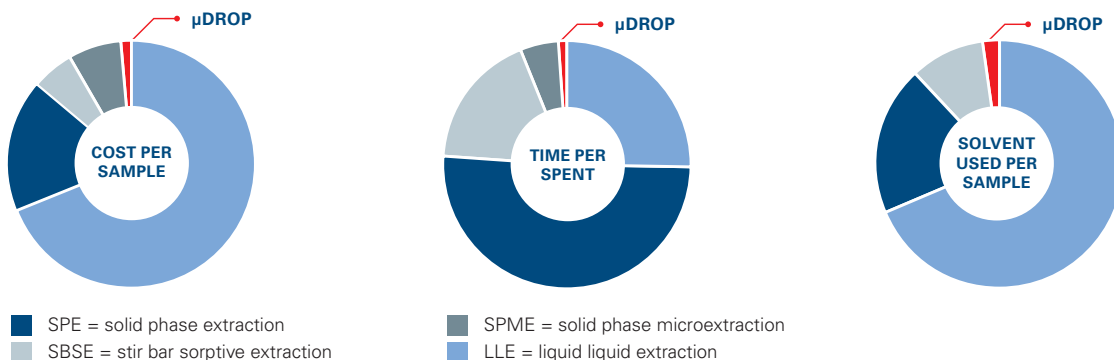
Simple Sample Preparation for Environmental Analyses

Every chromatographer knows that it's not just about the speed of the analytical system and shorter run times. Sample preparation is the key to a robust, sensitive and rapid method. Together with the high scanning speed and stable sensitivity, Bruker has developed a fast and easy-to-use sample preparation for water analysis. Bruker's instruments are solution-oriented and easy to use.



μ DROP sample preparation and the fast scanning possibilities of Bruker's GC-MS system:

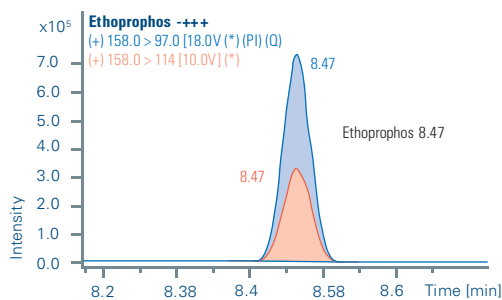
- Reduces the cost per sample by a factor of 20 and more due to the very limited use of solvents and consumables
- Dramatically decreases the time from report to sample in comparison to other techniques
- Leads to faster handling time



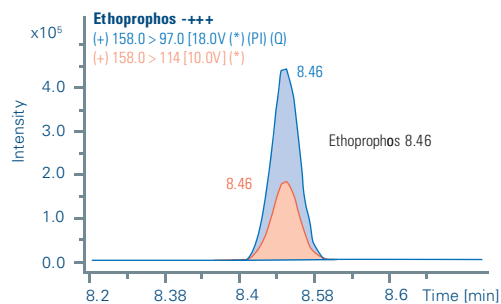
Optimal Speed in Analysis of Dioxins

Dioxin analysis is not easy to perform. In the past this analysis was only certified on large magnetic sector mass spectrometers. This is due to the fact that the isotope ratios must be stable for a correct determination of the different components. The EVOQ GC-TQ Speed has excellent isotope ratio stability, which is maintained even at high scan speeds. This enables a fast screening

process and increased throughput. This of course has a positive effect on the price per sample. For dioxin, the cost per sample is determined by sample preparation and run times; the impact of the instrument on the cost per sample is mainly determined by lack of robustness. Robustness is a key advantage of the EVOQ.



Regular method: Ethoprophos scan time 167 ms



Speed method: Ethoprophos scan time 4 ms

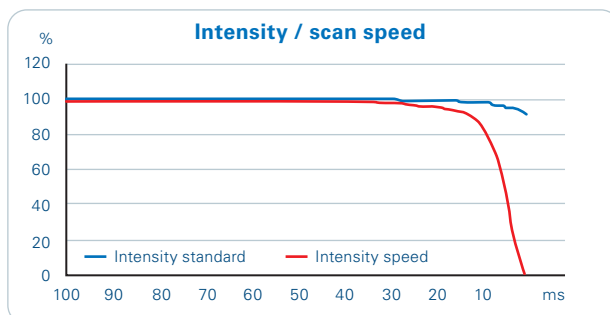
Ion ratio is a critical parameter for conformation and identification in MRM method setup. Typically faster scanning will influence the ion ratio and will create an increased number of false positive and false negative identifications. EVOQ GC-TQ Speed is able to maintain the ion ratio even with a 40 times faster scan rate. This is valuable for both pesticide and dioxin analysis.

The Story Behind Speed



The Compound Based Scanning (CBS) software function automatically calculates the scan time for each compound in dynamic windows. The unique MRM builder makes creating a method faster and easier than ever before.

The new feature of the EVOQ GC-TQ and tqControl software is the MRM Method Builder. With that you have two options: either insert the analyte from the MRM library or use the MRM builder which optimizes the analyte for you. A simple drag-and-drop of the compound from the factory-installed compound library, which contains more than 3000 MRM transitions, automatically sets up the method and manages the TQ duty cycle.



The fast-scanning capability of the EVOQ GC-TQ Speed allows multiple transitions for each compound to be optimally monitored during a single analytical run. By maintaining the individual retention time of each compound, the number of simultaneous transitions is reduced, resulting in the most efficient duty cycle, thereby increasing the sensitivity of the test.

Excellent Results with Excellent Software

Simple, Intuitive, Powerful

To obtain accurate sample results, every laboratory around the world needs clear automated reports with unambiguous results. Unfortunately, some very difficult matrices can present additional challenges. To overcome these, improvements in peak picking and computational performance ensure that the highest levels of robustness and accuracy are maintained. Superior hardware linked to specialized software guarantees excellent results.

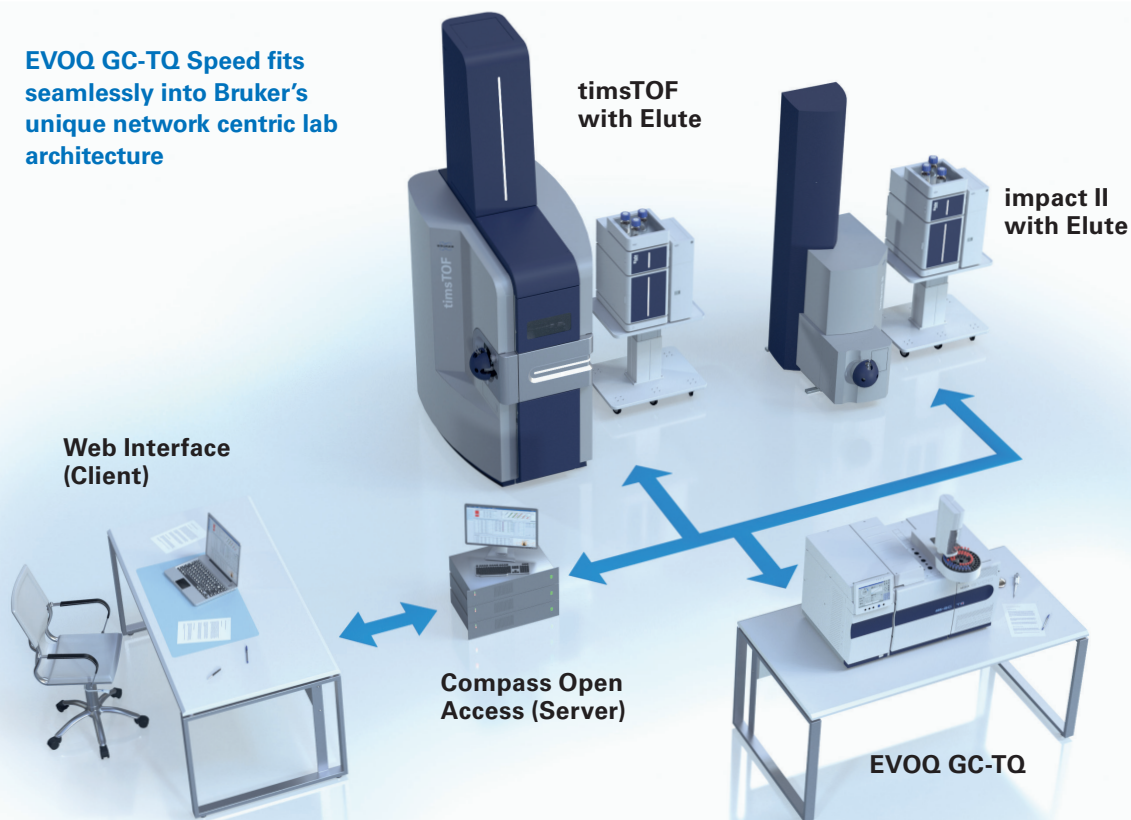
Bruker's Targeted Analysis for Screening and Quantification (TASQ) software was specially developed for automatic reports and is incorporated smoothly into tqControl. The goal of TASQ is to minimize false-positive or false-negative identifications, provide highly accurate

quantitative results, and enable easy data review of components.

After all, the software you use every day should make your life easier, and that's the real function of TASQ. Blue ribbon icons that appear during the workflow show at a glance at which point of data processing you are currently working.

The tqControl approach has focused on QC and targeted screening. The software is designed to streamline and speed up workflows and provide automation wherever possible by using scoring rules for common routine parameters. Probably most important for the analysis, it indicates with a flag when doubts arise about the validity of the result. All reports can be exported to LIMS in a flexible setup.

EVOQ GC-TQ Speed fits seamlessly into Bruker's unique network centric lab architecture



Work on your analytical data anywhere in the world, share it with your colleagues and link multiple different MS instruments into one integrated system.

Gas Chromatographs and Other Hardware Options

An Infusion of Innovation with a Legacy of Reliability

The GC is the key part to the reliability, robustness, and sensitivity of any GC-MS analysis. Bruker's philosophy of innovation is highlighted by the choice of two GCs built to support the ultra-sensitive EVOQ GC-TQ Speed. The compact 436-GC and the larger, more versatile 456-GC can accommodate two columns in the oven. Both are available with the new backflush technology and the innovative ChromatoProbe™. The GCs are also equipped with a multilanguage touchpad display supporting 13 languages.

436-GC

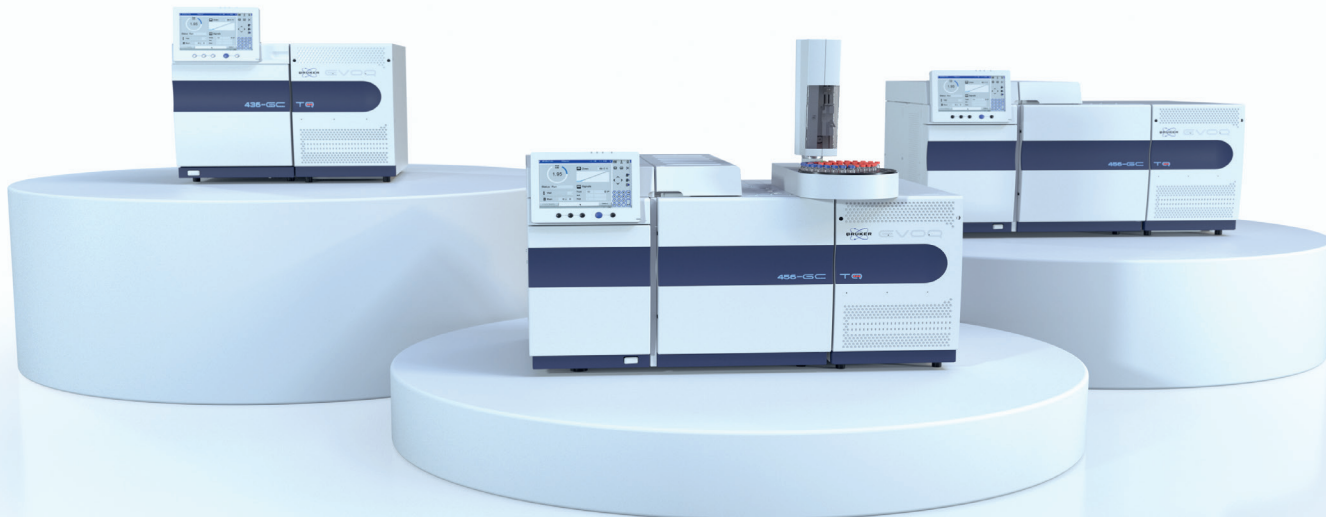
Compact design for those focused on routine applications requiring maximum throughput using one or two injectors.

- Select up to 2 injectors: Split/Splitless (SSL), Programmable Temperature Vaporization (PTV)
- Support of a GC detector and the mass spectrometer
- High precision electronic pressure control
- 9 temperature controlled zones up to 450 °C

456-GC

Versatile design with additional injector and detector options for laboratories seeking multipurpose analysis using both GC and GC-MS.

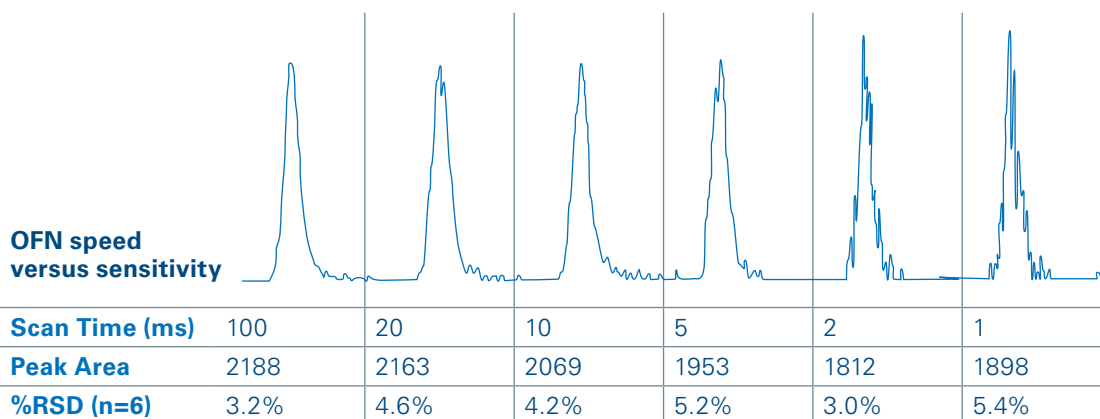
- Select up to 3 injectors: SSL, PTV
- Add up to 3 GC detectors: FID, ECD, TCD, PFPD
- High precision electronic pressure control
- All temperature zones up to 450 °C



The EVOQ GC-TQ Series Sets a New Industry Standard for GC-MS

All over the world many people and laboratories are working to get our world cleaner and healthier. To achieve this, they need to detect lower levels and measure more samples than ever before in our history. This requires hassle-free, easy-to-use tools with out-of-the-box solutions that enable accurate and fast reporting. EVOQ GC-TQ Speed was developed with precisely this aim. For easy review and reporting the software has standard client/server capabilities.

Please contact us.



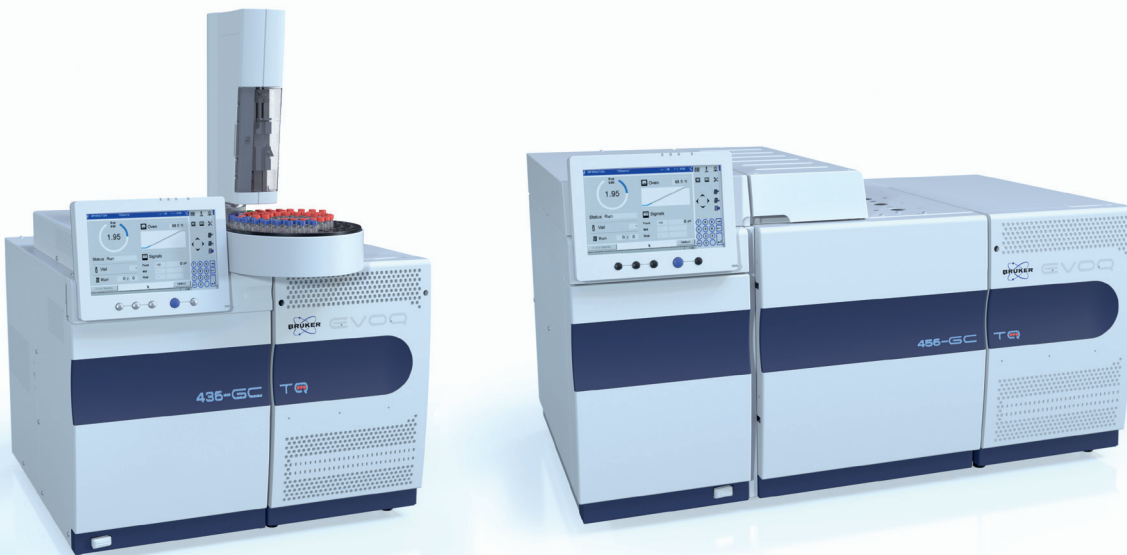
What are the most important needs of a GC-MS triple quadrupole system in a laboratory?

- ✔ Excellent sensitivity in matrix
- ✔ Robust sustainable performance within matrix
- ✔ Fast results of real samples
- ✔ Easy to use software

Standard specification of “artificial” examples without matrix will not give you an answer. Due to the source design of Bruker's GC-MS, the larger ion volume, and the avoidance of areas where matrix disposition can occur, optimal performance is guaranteed even when a complex matrix is in your sample. Are you curious about the ease-of-use and the performance of the EVOQ GC-TQ Speed, please contact your local Bruker representative.

EVOQ GC-TQ Speed

Increased scan speed without compromising on sensitivity or ion ratio precision



Robust maintenance free • Increased speed without losing sensitivity • Best ion ratio stability available

- 30,000 Da/sec
- Higher throughput enabled by high scan speed
- 1000 MRM/s
- Digital electronics coupled to a fast scanning detector preserve high-sensitivity during high-speed data acquisition

For Research Use Only. Not for use in clinical diagnostic procedures.

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