

[XEVO TQ-S MICRO]

REDEFINING COMPACT PERFORMANCE
ROBUST SENSITIVITY BEYOND EXPECTATION



TQ-S micro

Waters
THE SCIENCE OF WHAT'S POSSIBLE.®

Xevo TQ-S micro

CLASS-LEADING PERFORMANCE THAT CAN FIT INTO

From the most powerful family of tandem quadrupole instruments, the Xevo® TQ-S micro from Waters® epitomizes our key elements of design. Reliable instrument operation is essential to maximize laboratory efficiency. The Xevo TQ-S micro is able to reproduce high quality analytical performance injection after injection, even with the most complex sample matrices.

Designed to acquire sensitive, robust and dependable data at accelerated rates of acquisition:

- Robust performance enabled by proven ZSpray™ and StepWave™
 - Detect analytes at low concentrations in complex matrices.
 - Inject less sample with precision, accuracy and consistency.
- Xtended Dynamic Range™ (XDR) provides accessible sensitivity and method transfer.
- Confidently quantify more analytes using reproducible high acquisition rates with Xcelerated Ion Transfer™ (XIT) electronics.



ACQUITY UPLC I-Class with Xevo TQ-S micro

ANY LAB

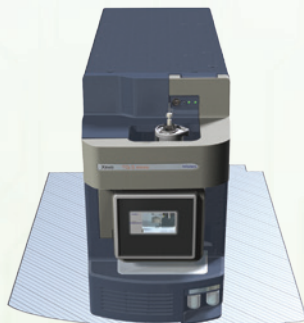
UPLC/MRM comparison of Xevo TQ-S micro relative to Xevo TQD

Compound	Ionisation Mode	Relative S/N	Relative Peak Area
Bentazon	ESI-	3	4
Hexaflumuron	ESI-	3	7
loxynil	ESI-	12	10
Teflubenzuron	ESI-	5	10
Amphetamine	ESI+	2	10
Atrazine	ESI+	5	5
Buprofezin	ESI+	5	6
Chlortoluron	ESI+	4	6
Dicrotophos	ESI+	10	11
Hexazinone	ESI+	3	8
Methomyl	ESI+	5	5
Metolachlor	ESI+	4	6
Metoxuron	ESI+	3	6
Monolinuron	ESI+	3	5
Sebuthylazine	ESI+	5	5
Terbuthylazine	ESI+	5	4
Vitamin D	ESI+	4	16
Mean Value		5	7

GET AHEAD WITH FAST, SENSITIVE DATA

Reduced Laboratory Footprint

Innovative technological design has resulted in a mass spectrometer with a very small footprint (42% smaller than the Xevo TQ MS) that delivers unmatched performance in its class.



ENGINEERED SIMPLICITY

The design philosophy of Engineered Simplicity™ ensures maximum system performance with minimum effort.

- Uncomplicated IntelliStart™ software simplifies instrument set-up and operation.
- New features in TargetLynx XS™ provide quick and easy results review and reporting.
- Universal source architecture gives access to the widest range of ionization techniques in minutes.

T-Wave™

The next generation of collision cell technology further improving rapid, high quality, UPLC®-compatible MS/MS data acquisition.

Enabled by StepWave Technology

Revolutionary off-axis ion source technology that removes neutral molecules, reducing noise and providing robust performance.

XIT Electronics

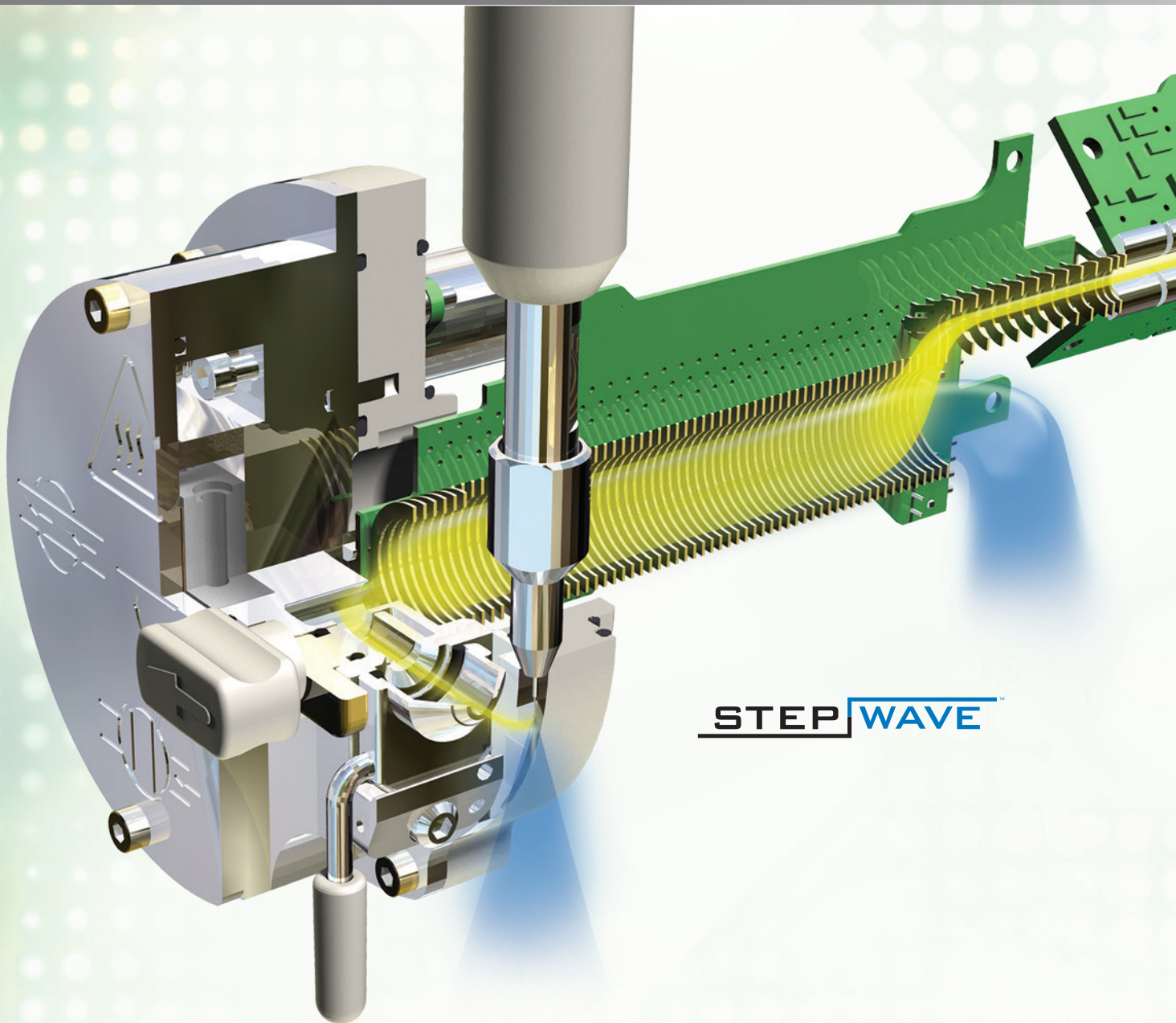
The new Xcelerated Ion Transfer electronics, featuring SpaceWire technology, enables rapid data acquisition so that narrow chromatographic peak widths are no barrier to reproducibility. Improved dynamic range is made possible by the XDR detector.

RADAR™

Using simultaneous quantitative and qualitative data acquisition it is possible to understand sample complexity, enabling intelligent method development while accurately quantifying target compounds with no compromise on performance.

PICs™

Product Ion Confirmation scanning is a data-directed product ion scanning acquisition capability, activated by a single check box, for additional confidence in analyte identification.

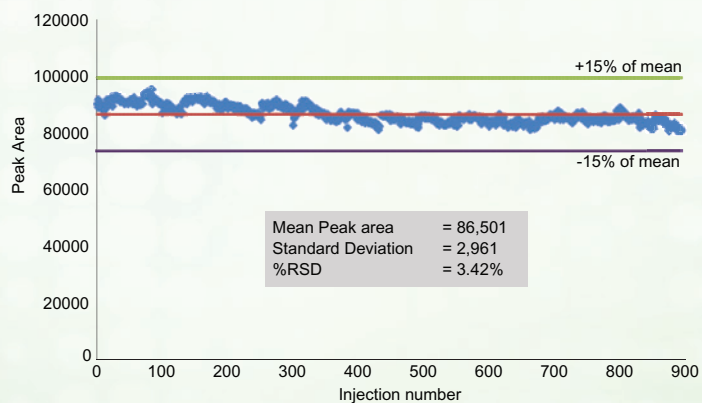


STEP **WAVE**

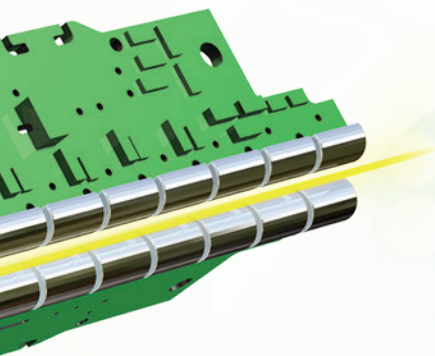
ROBUST PERFORMANCE

Robust performance begins in the source with proven ZSpray geometry, efficiently removing neutral molecules while drawing ions through the sample cone into the analyzer.

StepWave in the Xevo TQ-S micro is designed to cope with the challenges in the modern laboratory that are produced by high sample throughput and difficult matrices. Neutral molecules and gas load are passively removed for enhanced transmission, with the ion beam actively transferred into the mass analyzer, improving sensitivity and robustness.



Robust sensitivity for 900 injections of verapamil in protein-precipitated plasma (2.5 µg on column) with reproducibility of 3.4% RSD.



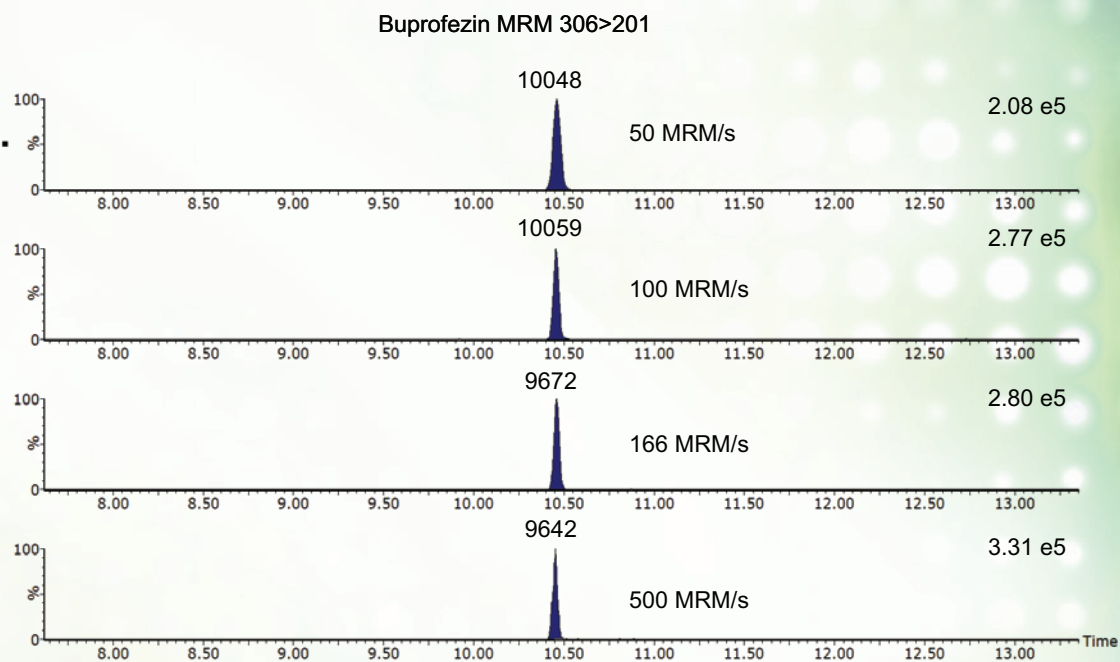
IMPROVED MRM ACQUISITION PEAK CAPACITY

Making Sensitivity Accessible with a Larger Dynamic Range

XIT electronics, using SpaceWire technology and the next generation of T-Wave collision cell, enable acquisition rates of 500 MRM/s with no compromise in data quality. The advanced XDR detector further increases the working range, allowing for easy method transfer.

As standard with the entire Xevo tandem quadrupole range, rapid polarity switching gives coverage of both positive and negative ionizing compounds in a single injection.

Repeatable Performance at High Speed



Injections of buprofezin pesticide showing only 4% loss in peak area (annotated above peaks) and no loss in peak height when increasing the rate of MRM transition acquisition from 50 MRM/s to 500 MRM/s. Ten injections were made at each rate of acquisition and reproducibility of peak area was excellent (<5.5% at each speed).

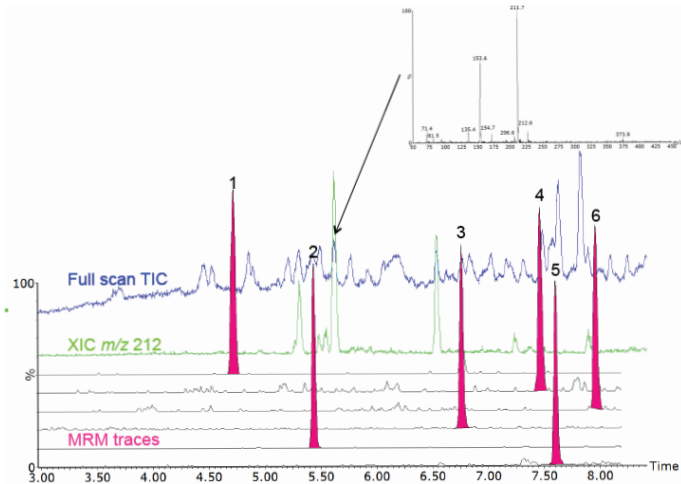
UNDERSTANDING SAMPLE COMPLEXITY

Use RADAR to Acquire Information – Rich Quantitative Data:

- Detect unexpected contaminants while performing routine quantitation.
- Characterize the background matrix for every sample, increasing data quality.
- Detect analytes that are not in a targeted MRM screening method.
- Improve method development by discovering more matrix components.
- Intelligent troubleshooting during routine analysis.

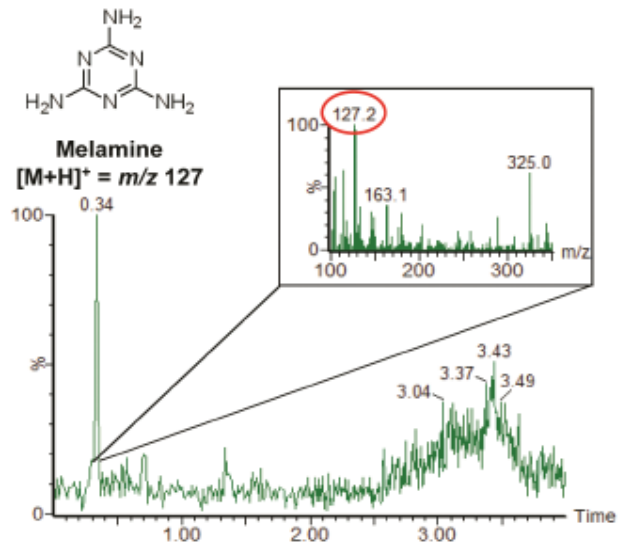
With RADAR it is possible to rapidly alternate between MS, MS/MS, positive and negative ion modes without compromising performance in any mode.

Characterization of the Background Matrix



Extracted MRM chromatograms for 6 pesticides (methomyl (1), dicrotophos (2), metoxuron (3), simazine (4), hexazinone (5) and monolinuron (6) in ginger matrix at 10 ppb) acquired using simultaneous MRM and full scan MS m/z 50-450. Inset is the full scan spectrum of a peak acquired at 5.63 min and the green trace shows the XIC for m/z 212.

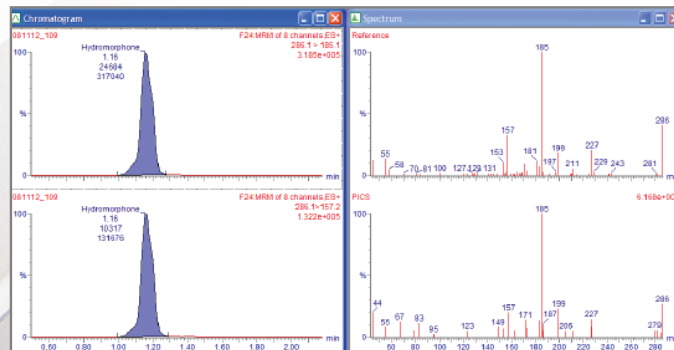
Unexpected Contaminant Detection



XIC for melamine from the full scan RADAR data Inset shows the background subtracted spectrum acquired at 0.34 minutes

Quantitate with Confidence

Product Ion Confirmation scanning (PICs) provides full confidence in results. Activated by a single check box in the method editor, PICs automatically triggers a product ion scan when a peak is detected by MRM.



Hydromorphone reference spectrum

Hydromorphone acquired PICs spectrum

TQ-S micro

Xevo®

INFORMATICS EXPANDING CAPABILITIES

Easy to Use, Even with Minimal Experience

Intellistart simplifies system setup with a user-friendly interface that automates routine tasks and reduces the burden of complicated operation.

Simple, Integrated Method Databases

The extensive and searchable QUANPEDIA™ database allows for efficient management and optimization of quantitative LC/MS/MS method information, including automatic scheduling of MRMs and automated generation of acquisition and processing methods.

Instant Critical QC Information Delivery

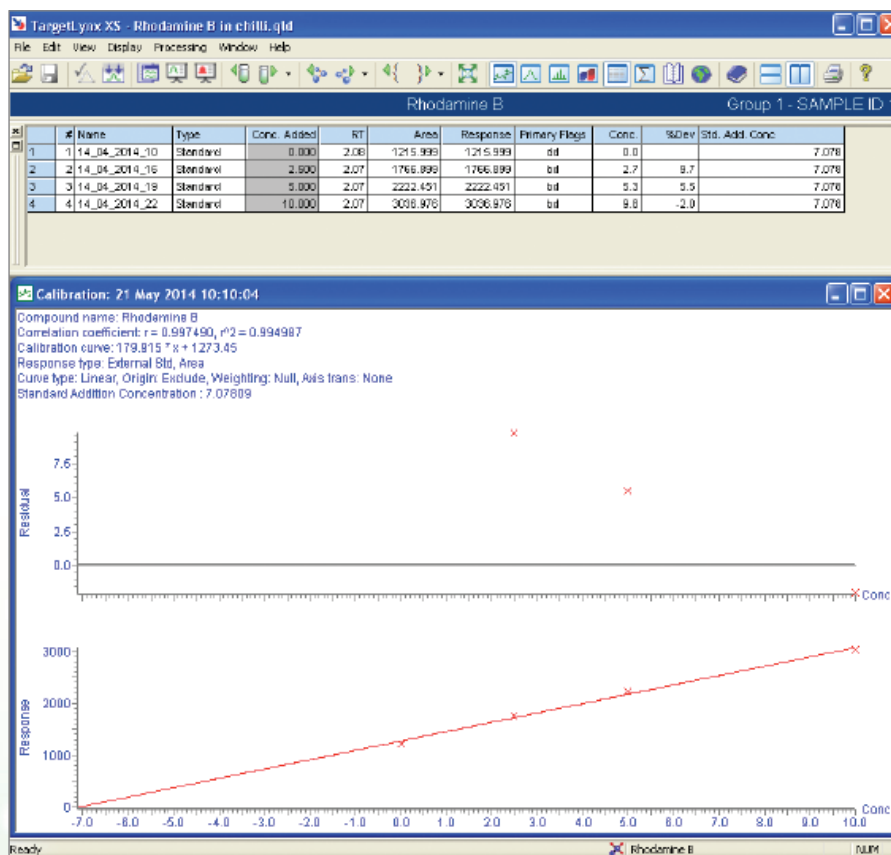
Automated real-time QC checking ensures that valuable samples are not wasted; if pre-defined tolerances are not met, QCMonitor will automatically send an email to notify the analyst.

Comprehensive Data Processing with Uncomplicated Results Review

TargetLynx XS now provides the ability to perform standard addition to accurately calculate analyte concentrations in complex samples despite extreme matrix variability. This software streamlines automated quantitative data review and reporting, minimizing the possibility of errors by providing a clear overview of QC checks and results.

Confidence in Your System Performance

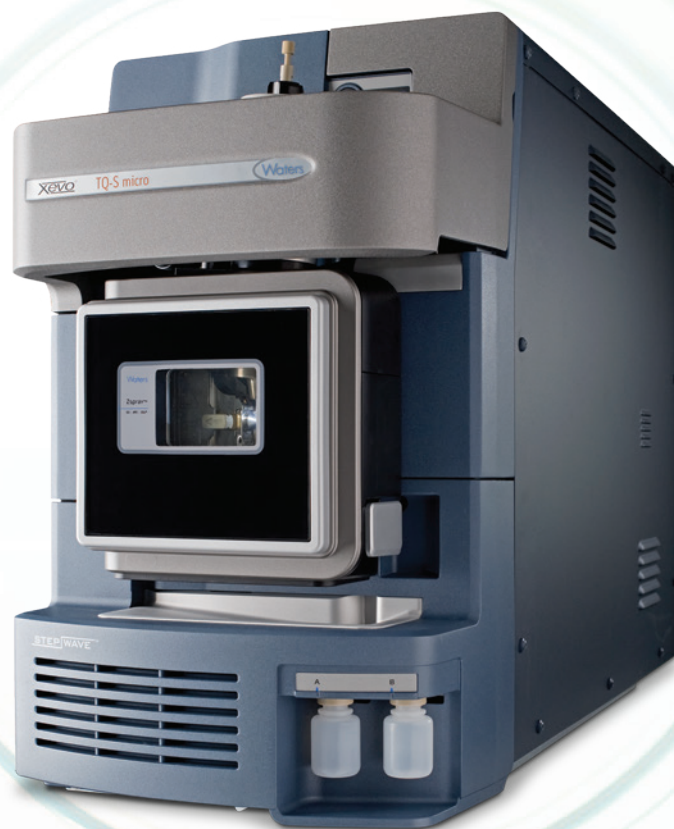
Monitoring QC and sample results over time is easy with TrendPlot, which has simple graphical displays to enable quick decision making, allowing faster results delivery to the customer.



The TargetLynx XS browser showing the use of standard addition to calculate the concentration of Rhodamine B.

FLEXIBLE SEPARATION TO COVER EVERY APPLICATION

High resolution chromatographic peaks require the increased rates of high quality data acquisition provided by the Xevo TQ-S micro. Waters market-leading separation technologies include the ACQUITY UPLC® family of LC systems, UPC², and APGC. Application flexibility is further enhanced by the range of quickly interchangeable ion source options made possible by universal ion source architecture.



ACQUITY UPC²



ACQUITY UPLC H-Class



ACQUITY UPLC I-Class



ACQUITY UPLC M-Class





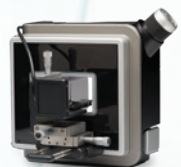
APGC – Atmospheric Pressure Gas Chromatography



*APPI – Atmospheric Pressure Photo Ionization
APCI – Atmospheric Pressure Chemical Ionization*



ionKey/MS™



nanoFlow™ ESI



*ESI – Electrospray Ionization
APCI – Atmospheric Pressure Chemical Ionization
ESCI® – Dual ESI and APCi*



ASAP – Atmospheric Solids Analysis Probe

CHANGE YOUR ION SOURCES NOT YOUR INSTRUMENTS

Universal Ion Source Architecture Covers Every Application, with Unlimited Potential.

The Xevo range of mass spectrometers all have multiple ion source options which are interchangeable in minutes and provide optimal ionization for each function required in the laboratory.

The Xevo TQ-S micro is compatible with ESI, ESCi®, APCI, APPI, APGC, ASAP and ionKey/MS™ and is also simply changed with DESI (Prosolia), DART (IonSense) and LDTD (Phytronix) ion sources.



The Power of Xevo

EXPAND YOUR CAPABILITIES



Xevo TQ-XS

ULTIMATE SENSITIVITY AND RELIABILITY

Your world is changing and you need to be able to develop robust methods quickly, get the same result every time, and generate data you can trust.

Take your analyses to the next level by employing market-leading instrumentation, combined with the right chemistries and methodologies and unrivalled specialist support, allowing you to focus on what you do with the data, not how you get it.

Leap forward in your scientific challenges and benefit from the innovative and accomplished Xevo mass spectrometers, engineered to deliver reproducible and accurate quantitative data, with system versatility and simplicity of operation.



Xevo TQ-S micro

SENSITIVE, RELIABLE, AND COMPACT



↑
SENSITIVITY
↓

Xevo G2-XS QToF

COMPREHENSIVE, QUANTITATIVE,
AND QUALITATIVE INFORMATION



Xevo TQD

ACCESSIBLE, RELIABLE, AND PROVEN

Xevo[®]

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