



Thermo Scientific ISQ Series  
Single Quadrupole GC-MS

**Leading technology**  
**Quality design**

**Thermo**  
SCIENTIFIC

# Leading technology

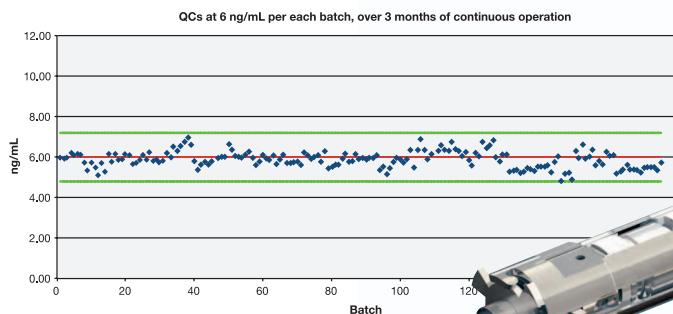
## Quality design

The Thermo Scientific™ ISQ™ Series single quadrupole GC-MS system features time-proven technology developed with the accumulation of almost 50 years of mass spectrometry innovation, offering an affordable and robust solution. This GC-MS series offers operational simplicity, proven dependability, and unstoppable productivity.

Re-think the way your lab operates with technology designed to keep you productive longer without interruption. In the heart of every ISQ Series GC-MS system is the Thermo Scientific™ ExtractaBrite™ ion source, delivering leading technology and quality design that enables your GC-MS to stay cleaner, longer. With heat throughout the ion optics, the ISQ Series instruments can analyze a larger number of dirty samples per day and stay robust after thousands of injections.

The ExtractaBright ion source is comprised of highly inert material for the highest sample path integrity. The ion source cartridge is completely wireless, eliminating the need to manage and maintain connections. The source is equipped with a unique and patented RF pre-filter for increased matrix robustness, which prevents uncharged matrix material from entering the analyzer for increased robustness and sample throughput. In addition, the S-shaped ion guide sets the ion source off-axis for the most efficient reduction of background noise, resulting in the highest sensitivity. Solid, homogeneous, and maintenance-free metal quadrupole rods and the extended dynamic range of the Thermo Scientific™ DynaMax™ XR detection system provide the highest sensitivity and spectral integrity over the full mass range.

Comprised of the **ISQ QD** single quadrupole GC-MS and **ISQ LT** single quadrupole GC-MS, the ISQ Series GC-MS systems are based on proven technology to deliver solutions that meet the current and future needs of your laboratory.



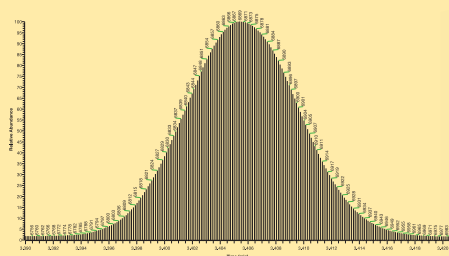
ISQ Series ExtractaBrite ion source robustness in batches of BSTFA derivatized urine

## Thermo Scientific ISQ QD GC-MS

For budget-minded lab owners seeking a reliable replacement for stand-alone GCs, the ISQ QD GC-MS offers a robust solution with quality design, MS operational simplicity, and proven dependability. The ISQ QD GC-MS is the instrument of choice in QA/QC and low- to medium-throughput production environments,

as well as in teaching and academic facilities. Featuring the common ExtractaBrite ion source within the ISQ Series, the ISQ QD GC-MS provides robust and reliable routine analysis dependability at an affordable price. This is a system that any chromatographer

can run, afford, and rely upon. With ease of use built right in, the broad range of compatible software, combined with self-paced training videos supplied with every instrument, makes it easy to learn, use, and teach to your new lab members.



ISQ QD GC-MS full scan data over 50 u mass range with 127 scans/s written to disk





## ISQ QD GC-MS Standard Features

- Dependable GC-MS at an affordable price
- Wide mass range 1.2–1100 u
- Standard capacity turbomolecular pump
- Dual filament of optimized geometry for reliable operation
- Choice of software for adaptability and ease of use
- Self-paced training videos on operation and maintenance

## ISQ Series Common Features

- Robust ExtractaBrite ion source with unique RF flatpole lens matrix pre-filter for continuous day-in, day-out operation
- Full Scan/SIM simultaneous within sample injection for confirmation and improved quantitation in the same analysis
- Extended dynamic range detection system
- Timed acquisition mode for operational simplicity
- AutoSIM is a simply intelligent method for quick and automated method development
- Inert ion source and sample flow path for highest chromatographic integrity
- Quick column change is enabled without venting the mass spectrometer using optional No Vent accessory

Design innovations that enable you to tap into future technology and streamline day-to-day operations

## ISQ LT GC-MS Standard Features

- **All of the features of the ISQ QD GC-MS, plus:**
- Industry-leading sensitivity, lower instrument detection limits, and unlimited flexibility
- GC-MS venting not required to exchange the ion source with Vacuum Probe Interlock supplied as standard
- Optional no-vent GC column exchange microfluidics accessory will make your ISQ LT GC-MS a never-vent system
- Extended capacity turbomolecular pump as standard
- Expand to Chemical Ionization, Direct Sample Probes (DEP, DIP), or hydrogen carrier gas
- AutoSIM and t-SIM included as standard for operational simplicity and automated method development

## Thermo Scientific ISQ LT GC-MS

For analytically-demanding, high-throughput laboratories, requiring utmost sensitivity and unstoppable productivity, the ISQ LT GC-MS offers the future-proof investment into the leading technology, simply intelligent GC-MS platform. Unlike other systems, the ISQ LT GC-MS does not need to be vented to exchange the source, and it boasts industry-best sensitivity, lowest detection limits, and unlimited flexibility.

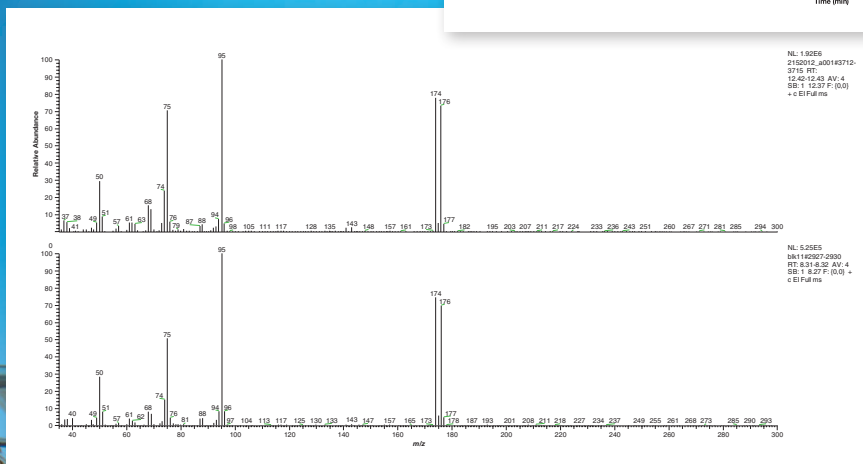
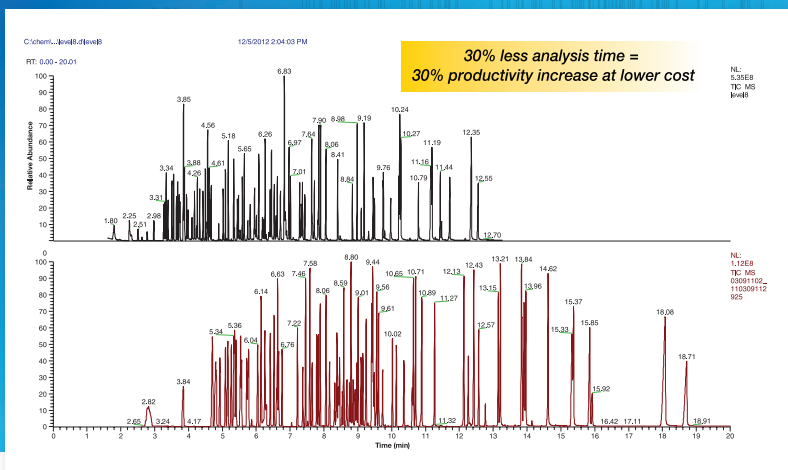


Enables full source removal in less than 2 minutes without requiring venting



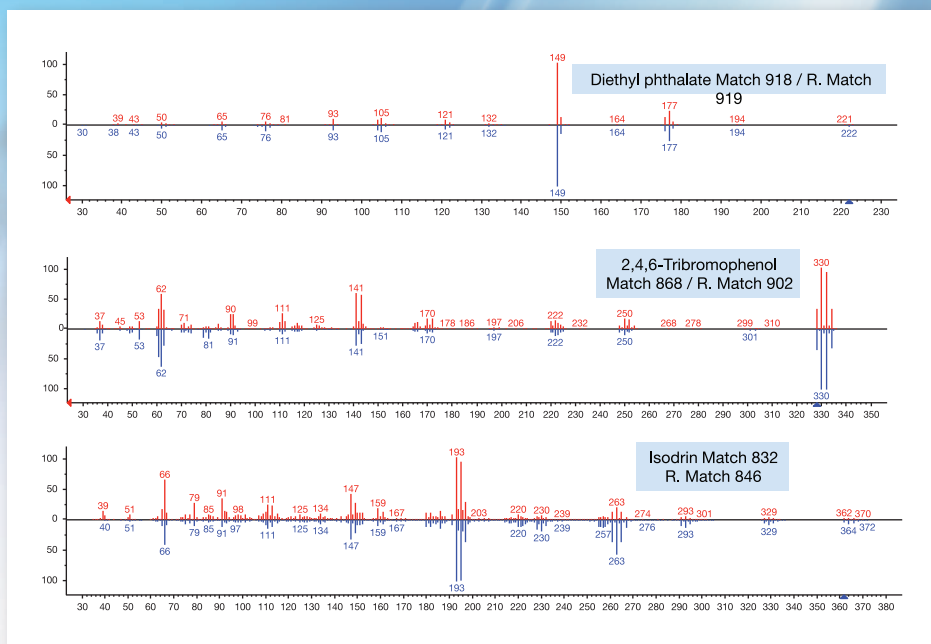
# Designed to run on renewable carrier gas

Unlike other single quadrupoles, the ISQ Series GC-MS has been designed to effectively work with hydrogen carrier gas and provide you with the same levels of safety and performance that are relied upon with the use of helium. If you are in a regulated environment that requires routinely meeting specific tuning criteria like bromofluorobenzene (BFB) or decafluorotriphenylphosphine (DFTPP) ion ratios, you probably prefer to rely on your NIST or Wiley MS library for the identification of the unknowns. If so, a hydrogen kit is available in conjunction with the ISQ LT GC-MS, and you can liberate yourself from helium cylinders or any cylinders, in fact, if you utilize a hydrogen generator.



**EPA Method 8270D performed with He (bottom) and H<sub>2</sub> (top) carrier gases**

**4-Bromofluorobenzene mass spectrum with He (top) and H<sub>2</sub> (bottom) carrier gas**



**NIST MS library matches with hydrogen carrier gas**



# The right GC-MS system

for today's challenges,  
tomorrow's opportunities

## Enhanced Transferline Design

The ISQ Series GC-MS features an optimized GC-MS interface. This transferline evenly distributes heat across the length of the analytical column, ensuring that there are no hot or cold spots, which in turn delivers Gaussian peak shapes, even for high-boiling compounds.

## Extended Mass Range – More Compounds to Cover

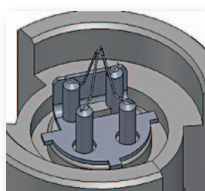
The ISQ Series offers an extended mass range, from 1.2 to 1100 u. This wide mass range enables your lab to perform analyses across the broadest range of compounds. Since the ISQ LT GC-MS is compatible with direct sample introduction, you are not limited to the mass range of compounds that are GC-able, allowing you to further exploit this mass range.

## Go Wireless

The cartridge source eliminates the hassle of connecting and disconnecting wires when maintaining your ion source. Secure electrical connections with the ion optics offer consistent connections, wirelessly. There is no need to inspect the source to confirm that the wires are in the correct location, or to remember which lead goes where – just insert the cartridge and go.

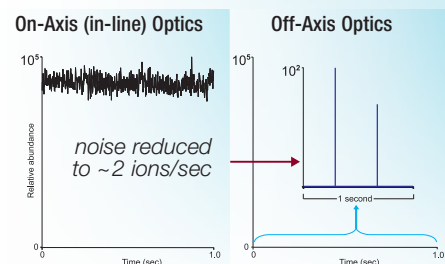
## Unique Dual-Filament Design

The ISQ Series GC-MS offers a dual filament for extended operation and lifetime. The unique design of the filament ensures that both filaments offer similar analytical performance. The filaments are oriented in the same direction for improved performance and are protected by an electron lens. Your analyses do not pay a price for switching from one filament to the next.



## No Noise is Good Noise

Achieving lower detection limits using a single quadrupole GC-MS requires breaking boundaries of noise – chemical noise, electronic noise, and neutral noise. Chemical noise and neutral noise contribute to higher backgrounds and affect detectability – the ability to distinguish a low-concentration target from noise. The quality design reduces chemical and neutral noise, allowing for lower detection limits and improved sensitivity. The off-axis ion source with patented pre-filter, combined with a unique s-shaped ion guide, dramatically reduce the effects of excited helium neutrals reaching the detector by creating a curved path that the neutrals cannot navigate.



Noise reduction due to off-axis ion optics

## Industry-leading Sensitivity – Unparalleled Robustness

Easily meet your required detection limits and consistently meet them even as you continue to run samples. It's not only about how sensitive your system is when it first arrives, but how long you can continue to achieve your required performance levels. This is the true measure of productivity. Independently heated zones for transfer line, ion source, and ion optics/mass analyzer help ensure that the system stays cleaner for a longer period of time.



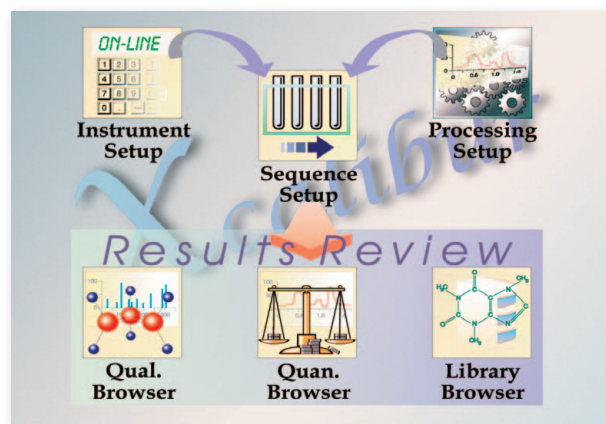
# Intuitive software for confident control

## Operational Simplicity

The ISQ Series GC-MS is fully controlled by the Thermo Scientific™ Dionex™ Chromeleon™ 7.2 Chromatography Data System, the Simply Intelligent™ chromatography package that streamlines your path from samples to results. Whether your needs are simple or complex – whether your scope is a single instrument, a global enterprise, or anything in between – the Operational Simplicity™ of Chromeleon CDS makes your job easy and enjoyable. The software's intuitive, easy-to-navigate user interface guides you effectively towards your goals with just a few clicks and allows for the quick training of new users. All MS data (TIC, SIM), as well as GC detector signals, are acquired digitally and stored together with gas pressures, injectors, oven temperatures, and additional instrument status information in the data files. Now with MS control and data processing capabilities, this data system adapts to your needs with its simplified user interface, innovative eWorkflows™, powerful data mining and analysis tools, and unrivaled reporting capabilities.



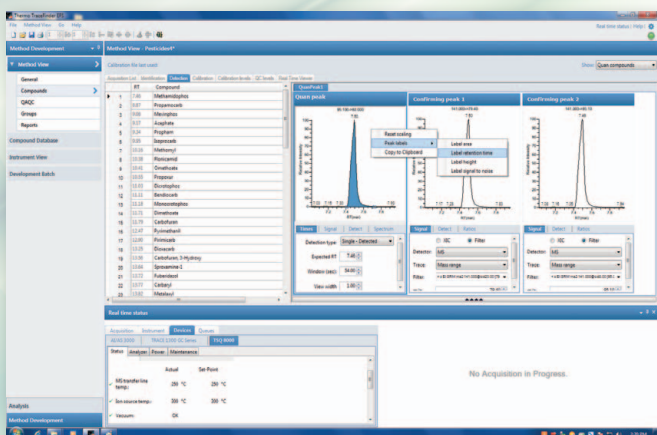
**CHROMELEON 7.2**  
Simply Intelligent



## Maximum Versatility

### Thermo Scientific™ Xcalibur™ Data System

The Xcalibur data system is the core 'operating system' for each of the broad range of Thermo Scientific mass spectrometry systems. Offering a common set of easy-to-use, yet powerful, tools for GC/MS and LC/MS alike, Xcalibur software provides a unified experience for every user of every system. It offers instrument control, sample sequencing, and a set of programs for both qualitative and quantitative applications. Xcalibur software is compatible with commercially-available mass spectral libraries, such as NIST, Wiley and Maurer-Pfleger-Weber, and others. It also includes tools for generating and maintaining your own spectral libraries. Supporting each type of autosampler and GC available, Xcalibur software allows each mass spectrometer to be utilized to its fullest.



## Optimized Productivity

### Thermo Scientific™ TraceFinder™ Software

The TraceFinder application software provides a streamlined workflow for the needs of a wide variety of high-throughput quantitative applications. Customized versions target the critical needs for key application areas, such as environmental and food safety, clinical research and forensic toxicology.

TraceFinder software is designed to provide workflow guidance for those areas which benefit most from automation, while also providing sophisticated manual tools for those areas where the analyst's expertise is key to completing that task at hand. From the very start, TraceFinder software is focused on efficient method development, rapid batch set-up, fluid data review, and flexible reporting.



# Excellence in GC-MS

## begins with the GC

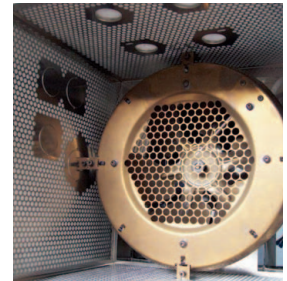
### Ground-Breaking Plug-In Modularity

Why stop at a removable source design? Tailor the Thermo Scientific™ TRACE™ 1300 Series GC to your needs with its proprietary user-exchangeable Instant Connect injector and detector modules. Swapping modules is easily done by the removal of three screws, accessible from the top of the GC. The entire process takes less than two minutes. This enables budget-conscious laboratories to start with a single channel solution today, then easily expand their capabilities to accommodate new application and throughput demands. For flexibility in applications, two GC columns can be installed permanently. With the TRACE 1300 Series GC paired with your ISQ GC-MS, tomorrow's opportunity is in your hands today.



### Less is More

The oven, injectors, and detectors of the TRACE 1300 Series GC have a very low thermal mass. This enables faster heat-up and cool-down times, reducing your inject-to-inject time and increasing your sample throughput. Increase sensitivity with a completely new range of micro volume GC detectors. The unmatched sensitivity of these new instant connect detectors allows you to limit sample re-concentration requirements or reduce required initial sample amounts.



### Simple Autosampling Options

The Thermo Scientific AI 1310 autosampler offers a basic configuration for up to 8 vials at a time, while the AS 1310 autosampler holds over a hundred standard liquid autosampler vials. Excellent precision and tool-free alignment make this sampler a perfect choice for routine liquid sample injections.

### Robotic Sample Handling

Unmatched performance for liquid injection, the Thermo Scientific™ TriPlus™ RSH Autosampler offers optimized liquid injection modes to support a wide range of sample types, inlets, and techniques for syringe-filling and injection. The ability to fully optimize your injection technique combined with precise robotic movement of the autosampler enables the precision you demand for achieving truly exceptional results. The automatic tool change feature enables the user to set up a sequence using up to six different syringes automatically loaded by the autosampler. This makes it the most flexible autosampler for enhancing laboratory productivity by offering the following:

- Switch from liquid injection, to headspace, to SPME\* – all in the same sequence
- Automated calibration preparation with or without internal standards
- Reagent additions, with programmed incubation times for derivatization
- Vortexing station allows for sample homogenization



\* Sold under license from Supelco®



# Thermo Scientific Chromatography

## columns and consumables

the perfect partner for optimal analytical performance

Thermo Scientific chromatography columns and consumables are designed to complement our innovative range of GC and GC-MS systems. Get the most out of the ISQ Series GC-MS system by pairing it with advanced, high-performance Thermo Scientific products. The wide range of consumables and accessories offer customers applications-focused solutions in the environmental, food analysis, forensics/toxicology, petrochemical, pharmaceutical and general analytical industries.

### Sample Handling

- Comprehensive range of vials and closures
- Mass Spec Certified vials, the only pre-cleaned chromatography vial available
- Thermo Scientific™ SureStop™ vials offer sealing performance comparable to crimp-top vials in a screw thread vial design

### Sample Preparation

- Thermo Scientific™ HyperSep™ Retain SPE products
- Thermo Scientific™ SOLA™ SPE cartridges and plates
- QuEChERS solutions for efficient sample preparation and clean-up
- GC derivatization reagents
- Thermo Scientific™ Reacti-Therm™ sample derivatization system

### GC Columns and Accessories

- Thermo Scientific™ TraceGOLD™ GC columns
- Thermo Scientific™ TracePLOT™ GC columns – providing reproducible analysis of permanent gases, hydrocarbons and solvents
- GC consumables – syringes, injection port liners, ferrules, gas filters, septa, o-rings

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