



More power for your next discovery

GC IsoLink II IRMS System

Discover more with the next generation GC-IRMS

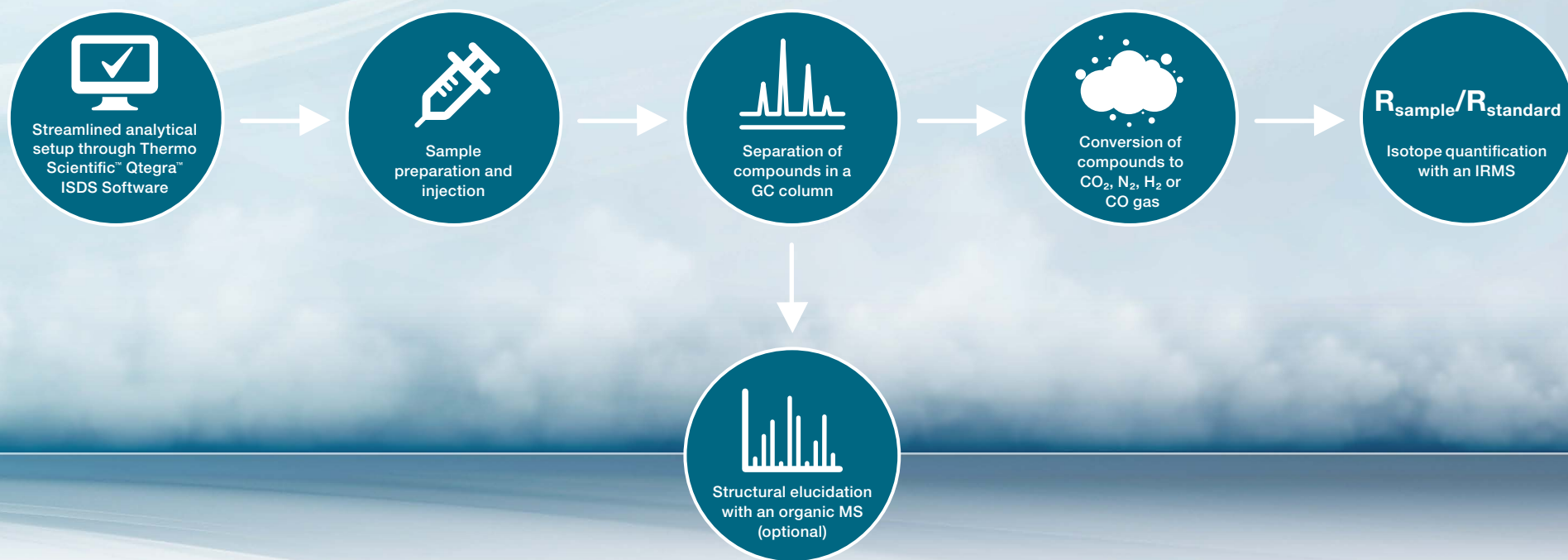
The Thermo Scientific™ GC IsoLink™ II IRMS System provides the ultimate level of performance and versatility to meet the analytical challenges of rapidly expanding applications using compound specific isotope ratios. The next generation GC-IRMS platform harnesses the power of the Thermo Scientific™ TRACE™ 1610 Gas Chromatograph to maximize the operational efficiency and profitability of your laboratory.

The Thermo Scientific™ TriPlus™ RSH SMART Autosampler or AI/AS 1610 Liquid Autosampler delivers an additional boost with exceptional precision, sample handling flexibility and unattended operation. The C, N, H, or O isotopic compositions of individual organic compounds are analyzed with the highest sensitivity and precision using the GC IsoLink II IRMS System featuring either the Thermo Scientific™ DELTA™ Q IRMS or 253 Plus™ 10 kV IRMS.



Streamlined workflow

Add isotope ratio information to your analysis



Flexible system configuration

The GC IsoLink II IRMS system offers modular design to host a multitude of configurations on the same system, allowing flexibility to support various applications and gain isotopic information of individual compounds in complex mixtures.

- 1 TriPlus RSH SMART Autosampler**
Exceptional precision, flexibility, and productivity in robotic sample-handling solutions. Features SMART consumables tracking to offer easier, safer, and traceable operations.
- 2 TRACE 1610 GC**
A unique modular concept for optimized instrumental usage. Features user-installable Thermo Scientific™ iConnect™ injector and detector modules, enabling easy cable- and tubing-free connections.
- 3 GC IsoLink II Conversion Unit**
Quantitative conversion of all organic compounds eluting from a GC column into simple gases (CO₂, N₂, H₂, or CO) for high-precision IRMS analysis while maintaining full chromatographic resolution.





4 ConFlo IV Universal Interface

Continuous and unattended analysis with auto-determination of linearity and stability, and software-controlled reference gas intensities.

5 DELTA Q IRMS

Proven performance with unprecedented robustness and ease of use. Experience highest-in-class precision and sensitivity for isotope ratio analysis.

6 Liquid nitrogen trap

Fully automated trap for complete removal of CO₂ in ¹⁵N analysis mode.

7 Quadrupole MS system (optional)

The hyphenation of a quadrupole MS to GC-IRMS allows determination of structural information and identification of individual GC compounds simultaneously to IRMS analysis.

Optimized injection offering to support your sample type

All-in-one robotic autosampler

The TriPlus RSH SMART Autosampler offers the highest level of automation with the largest sample capacity, combined liquid, headspace, solid-phase micro-extraction and ITEX-DHS injection capability, and unattended sample preparation workflows.

The Automatic Tool Change enables users to set up sequences using different syringes, automatically loaded by the autosampler for increased analytical flexibility and lab productivity.

Innovative SMART technology that tracks usage of SMART syringes, SPME, and SPME Arrow fibers, resulting in optimized consumables management and higher confidence in analytical results for GLP compliance.



Fit-for-purpose solution

The AI/AS 1610 Liquid Autosampler offers a robust, easy-to-use unattended sample analysis, saving valuable time while improving data quality with high-precision injections. Scalable, the AI/AS 1610 Autosampler features 8- or 155-vial capacity with simplified setup and control via the ChromControl plugin in Qtegra ISDS Software.



Color-coded status indicator provides at-a-glance autosampler status information.

Illuminated syringe compartment featuring a magnifying window facilitates syringe viewing and replacement.

Single cable for communication, synchronization, and power supply.

Always ready to run

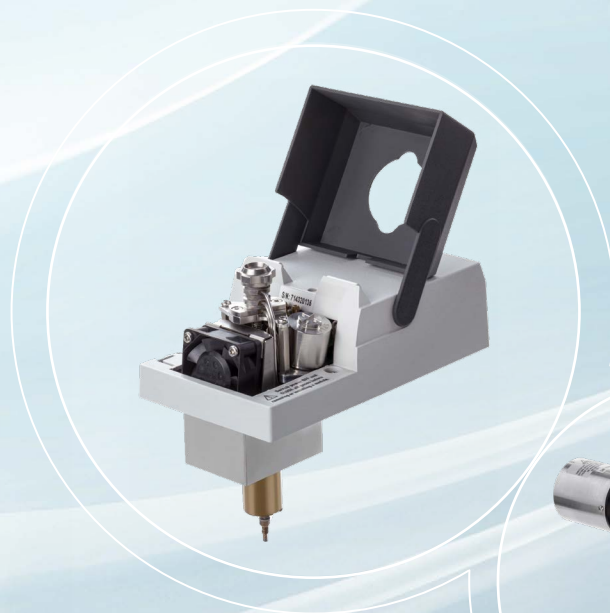
Versatile modular configurability of the TRACE 1610 GC minimizes idle time, maximizing the productivity of your lab. The full range of iConnect injectors and detectors for the TRACE 1610 GC enables you to quickly address multiple applications and adapt your GC to new samples. Self-installable components and simple replacement procedures help ensure quick and easy troubleshooting and maintenance by laboratory staff.



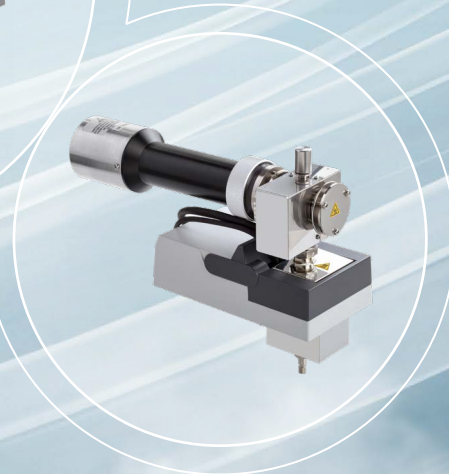
High-resolution touchscreen to support daily operations with video instructions on common procedures.

Simplify and speed up column installation with a quick, easy, and safe tool-free column connector and an illuminated oven.





Full range of self-installable injector (e.g., SSL, PTV, GSV) and detector (e.g., FID or TCD) modules to minimize GC downtime and achieve versatile configurations.



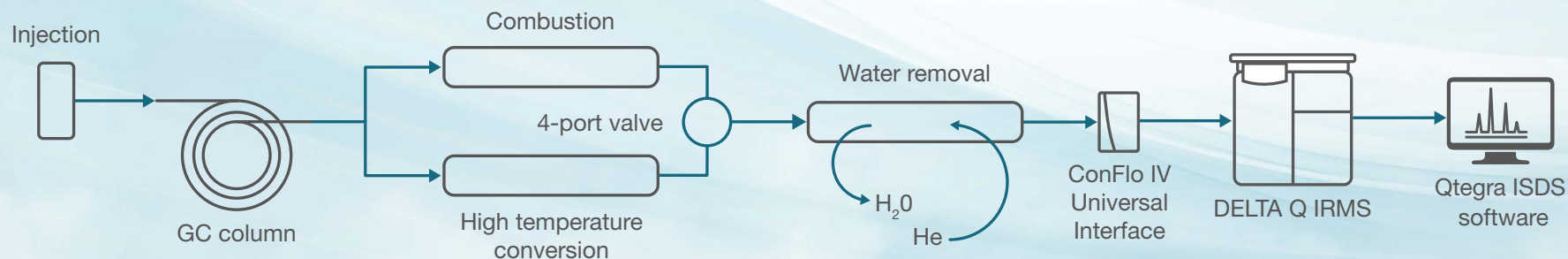
Make a sustainable choice

The proprietary reduced-thermal-mass oven consumes less power while offering the industry's fastest startup. Instrument health monitoring and automated consumables tracking make it possible to optimize consumables use, avoiding unnecessary and costly replacement. Thermo Fisher Scientific is committed to investing in further product developments that allow users to increase sustainability within their laboratories. View [**ACT Ecolabel**](#) for the TRACE 1600 Series GC.



One interface, multi-isotope information

The GC Isolink II conversion interface is designed for compound-specific analysis of C, N, H, and O isotope fingerprints. The system has a holistic capillary design with combustion and high temperature (HT) conversion technology, allowing complete conversion of compounds into CO₂ and N₂ gases by combustion, and into H₂ and CO gases by HT conversion.



Combustion and HT conversion reactors in parallel

Directing the GC flow to the combustion or the HT conversion reactor is fully controlled by the Qtegra ISDS Software with the switching technology positioned outside of the GC oven zone for maintenance-free and reliable operation.

The GC IsoLink II combustion reactor provides optimal reactor conditions for achieving both quantitative combustion and reduction (¹³C and ¹⁵N mode) of individual compounds.

Capillary reactor design with solder joint

The capillary design of the reactors maintains sharp, high-resolution GC peaks and enables maximal separation of constituent components of complex mixtures.

A deactivated capillary is attached to the reactors with a capillary solder joint, allowing easy reactor replacement and eliminating any risk of leakage at the entrance to the reactor.



Micro Channel Device for easy connectivity

Attain chromatographic resolution and integrity by seamless connection of the GC with reactors and a temperature-controlled backflush system using the Micro Channel Device (MCD). The post-column backflush helps ensure quantitative removal of solvents before the reactors for highest conversion efficiency and reactor capacity.

The MCD features chemically deactivated internal channels and low dead volume connections that are easy to install and are already leak free when finger tight.

Single injection, comprehensive sample characterization

The hyphenation of IRMS and quadrupole MS to a single TRACE 1610 GC provides complimentary information to qualify the true identity of compounds. From a single injection, isotope ratio analysis, structural information, and identification of individual GC compounds can be determined.



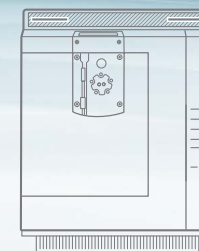
The choices of quadrupole MS systems include the Thermo Scientific™ ISQ™ 7610 single quadrupole GC-MS systems, the TSQ™ 9610 triple quadrupole GC-MS/MS systems, and the Orbitrap Exploris™ GC 240 MS system for comprehensive characterization of samples in a single analysis.



ISQ 7610



TSQ 9610



Orbitrap Exploris GC 240

Efficiency driven by Qtegra ISDS Software

The Qtegra ISDS Software workflow guides you from sample to result, without compromising on flexibility. The ChromControl function harnesses the power of Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) Software, providing everything you need for an autosampler and GC setup in one place.

- Automatic system checks
- Templates and QC features
- In-software data normalization
- Flexible data export
- Customizable reports



Enhanced data visualization through a layered approach to results, where compounds are easily labeled to improve clarity and chromatograms can be stacked or overlayed to assist in data evaluation and method development.



Discover more in your samples



Food integrity

The isotope fingerprints in food products are region or process specific. Compound specific GC-IRMS analysis of complex food matrices allows products to be differentiated based on geographical region, botanical processes, soil and fertilization processes, and fraudulent practices.

Environmental forensics

Changes in carbon and nitrogen isotope fingerprints of individual organic pollutants correlate with their level of degradation in soil profiles, allowing the assessment of soil and ground water contamination.



Doping control

The misuse of endogenous anabolic steroids can be detected by using carbon isotope analysis of steroids and their metabolites. As concomitant data are critical to qualify the identity of a compound in antidoping investigations, the hybrid GC-MS-IRMS system can be used for ultimate sample characterization.

Physiology studies

Carbon, hydrogen, and nitrogen isotope analyses of amino acids are widely used in biological and medical studies for investigating environmental and physiological processes and the structure of food webs in aquatic and terrestrial environments.



Energy investigations

Carbon and hydrogen isotope analysis of petrochemical material, such as crude oil and gas, allows for differentiation of their sources, migration, reservoir characterization, but also assessment of maturation and biodegradation processes. Additionally, isotope fingerprints can be used to address the influence of petrochemical exploration on the environment.

Geoscience research

Reconstructing changes in vegetation, rainfall patterns, and temperature is possible by GC-IRMS determination of C, H, N, and O isotope fingerprints. By extracting organic and inorganic materials from archives such as sediments, ice cores, and speleothems, it is possible to understand climate changes on timescales from decades to millions of years ago.



Connectivity for origin and authenticity

High throughput, unattended operation, and flexibility for demanding analysis is brought to laboratories through the Thermo Scientific™ DELTA™ Q IRMS and the connecting peripherals that are fully controlled by the Thermo Scientific™ Qtegra™ ISDS Software.



The Thermo Scientific™ EA IsoLink™ IRMS System is an automated, easy-to-use solution for isotopic analysis of carbon, hydrogen, nitrogen, sulfur, and oxygen in bulk samples and is powered by chromatography driven technology with high sensitivity on small samples.



The Thermo Scientific™ LC IsoLink™ II IRMS System connects HPLC with IRMS, allowing sensitive, precise determination of $^{13}\text{C}/^{12}\text{C}$ ratios of polar compounds and bulk samples.



The Thermo Scientific™ GC IsoLink™ II IRMS System provides seamless solutions combining the separation power of capillary GC with IRMS with high sensitivity for the analysis of GC amenable compounds.



The Thermo Scientific™ GasBench Plus System facilitates automated preparation and analyses of headspace samples, including water equilibration, carbonates, and atmospheric gases.

 Learn more at thermofisher.com/gc-isolink

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