

# Thermo Scientific *irm*-GC/MS Technology

Get more information from your GC samples.



## Introduction

The Thermo Scientific™ *irm*-GC/MS is the first fully integrated *irm*-GC/MS system which is operated like a GC/MS. The new Thermo Scientific GC IsoLink™ unit integrates the Thermo Scientific TRACE GC Ultra™ gas chromatograph with the Thermo Scientific DELTA V™ isotope ratio mass spectrometer into one easy-to-use unit. The isotope ratios of all compounds in a GC application can now be monitored with precision of better than 2 ppm (0.0002 at %).

The GC IsoLink unit incorporates the knowledge and experience of an installed base of more than 900 *irm*-GC/MS systems. All injection techniques and detector systems including Thermo Scientific GC/MS analyzers can be an integrated part of the *irm*-GC/MS system creating the most powerful analytical tool set.



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## Basic Specifications

### ConFlo IV Universal Interface

10 pulses of reference gas (amplitude 3 V, for H<sub>2</sub> 5 V) δ notation

		Precision (1σ)	Linearity
CO <sub>2</sub>	<sup>13</sup> C	0.06‰	0.02‰
N <sub>2</sub>	<sup>15</sup> N	0.06‰	0.02‰
CO	<sup>18</sup> O	0.15‰	0.04‰
H <sub>2</sub>	<sup>2</sup> H	0.50‰	0.20‰

### External Precision for Isotope Ratios C, N, O, H

Using the GC-C or GC-TC reactors, analyte on column, (n=5), δ notation

<b><sup>13</sup>C/<sup>12</sup>C</b>	<b>FID MIX</b> 12 ng of n-C <sub>14</sub> , n-C <sub>15</sub> , n-C <sub>16</sub> in iso-octane (56 pmol of n-C <sub>15</sub> ), corresponds to 10 ng C (0.8 nmol C) on column	as CO <sub>2</sub>	0.2‰
<b><sup>15</sup>N/<sup>14</sup>N</b>	<b>Caffeine</b> 150 ng of caffeine (750 pmol), corresponds to 42 ng N (1.5 nmol N <sub>2</sub> ) on column	as N <sub>2</sub>	0.5‰
<b><sup>18</sup>O/<sup>16</sup>O</b>	<b>Vanillin</b> 250 ng of vanillin (1.7 nmol), corresponds to 80 ng O (5.0 nmol O) on column	as CO	0.8‰
<b><sup>2</sup>H/<sup>1</sup>H</b>	<b>FID MIX</b> 200 ng of n-C <sub>14</sub> , n-C <sub>15</sub> , n-C <sub>16</sub> in iso-octane (940 pmol of n-C <sub>15</sub> ), corresponds to 30 ng C (15 nmol H <sub>2</sub> ) on column	as H <sub>2</sub>	3.0‰

## Installation Requirements

### Power

3-phase 230/400 V -10% + 6%, fused 16 A/phase (single-phase optional), 50/60 Hz, dedicated line voltage must be free of spikes.

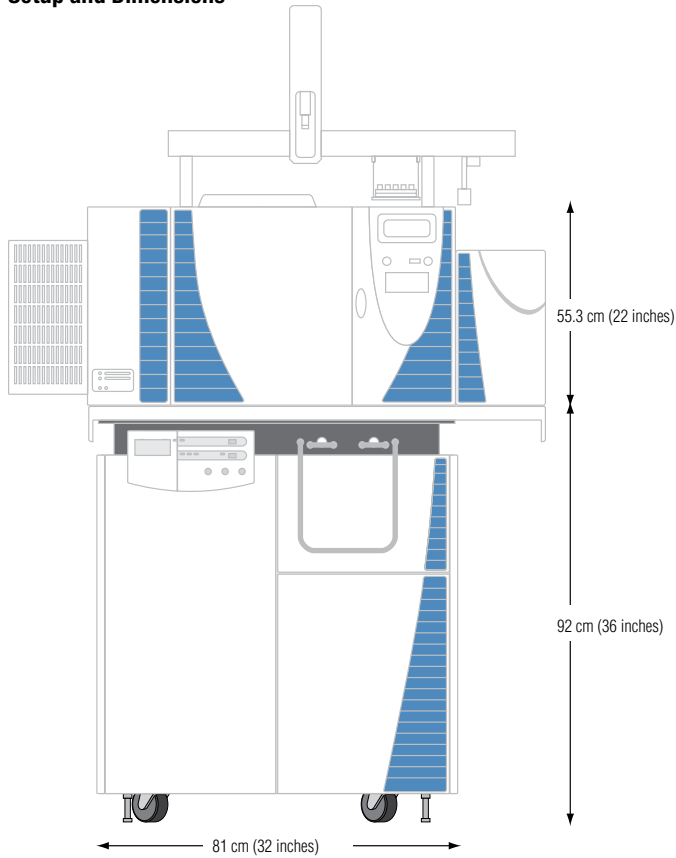
### Thermo Scientific Instruments for *irm*-GC/MS

- GC IsoLink unit
- ConFlo IV™ universal interface
- TRACE GC Ultra gas chromatograph
- TriPlus™ autosampler
- DELTA V isotope ratio MS

### Supplies

- Helium carrier gas
- Reference and regeneration gases
- Compressed air > 400 kPa (> 50 psi)
- Thermo Scientific columns and consumables

## Setup and Dimensions



[www.thermofisher.com/irms](http://www.thermofisher.com/irms)

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