

## Specification sheet

# BenchTOF2™



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### 1. Product description

The BenchTOF2™ suite of mass spectrometers are the ideal choice to tackle challenging GC and GC×GC applications, due to their ability to perform confident target and non-target analyses on a single platform. These next-generation instruments build on an unbeatable combination of sensitivity, spectral quality, selectivity, speed and stability, with innovative performance improvements in both hardware and software.

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### 2. Dimensions and weight

#### a. Dimensions:

- ▶ Height: 42.4 cm (16.7") (max.)
- ▶ Width: 64.6 cm (25.4")
- ▶ Depth: 71.4 cm (28.1")

#### b. Weight:

- ▶ 77.5 kg (171.0 lb)

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### 3. GC interface

#### a. Integrates with:

- ▶ Agilent 6820/6850/6890 series, 7820/7890 series and 8890 series GCs
- ▶ Thermo Scientific™ TRACE™/FOCUS™ series GCs
- ▶ Other GCs on request

## 4. Vacuum system

### a. Pumping:

- ▶ Differentially pumped, with separate source and analyser chambers
- ▶ Uses a single split-flow turbomolecular pump, backed by an oil-free roughing pump

### b. Vacuum measurement:

- ▶ Integrated digital transmitter
- ▶ Continuous pressure measurement from  $10^3$  to  $10^{-9}$  mbar

### c. System equilibration time:

- ▶ 30 min from full system vent (e.g. following a column change)

## 5. Reference specifications<sup>[1]</sup>

Specification	BenchTOF2™	BenchTOF2-TI™
Instrument detection limits <sup>[2]</sup>	<20 fg OFN (at 70 eV)	<20 fg OFN (at 70 eV) <40 fg OFN (at 70/16 eV in Tandem Ionisation® mode)
Ionisation mode	Standard EI (70 eV)	Tandem Ionisation: Simultaneous acquisition of any two ionisation energies (between 10–70 eV)
Linear dynamic range	≥Five orders of magnitude	
Acquisition speed	Up to 400 Hz	
Resolution	>1200 FWHM (at 70 eV)	
Mass accuracy	<50 ppm	
Time resolution	1 ns	
Carrier gas	Helium or hydrogen	
Carrier gas flow capacity	Helium: Up to 10 mL/min (up to 5 mL/min recommended for 1D GC) Hydrogen: Up to 4 mL/min	
Mass range	m/z 1–1500	
Ion source T range	400°C	
Transfer line T range	50°C to 450°C (±0.1°C)	

## 6. Software

BenchTOF2 instruments are controlled using either ChromSpace® 1D or ChromSpace (for GC×GC) and are supplied with an acquisition PC with the following specifications:

### a. Suggested minimum PC requirements:

- ▶ Windows® 10 64-bit (English edition)
- ▶ 6-core Intel® processor
- ▶ 32 GB RAM
- ▶ 512 GB SSD plus 2 TB SATA HD
- ▶ 2 GB graphics card
- ▶ Two colour monitors with 1920 × 1080 resolution

### b. Supported data formats:

- ▶ Native continuum (.dat) and centroided (.lsc) formats

### c. Output to:

- ▶ Agilent ChemStation® and MassHunter (.d)
- ▶ Thermo Scientific™ Xcalibur™, Chromeleon™ and TraceFinder™ (.raw)
- ▶ ANDI/netCDF (.cdf)
- ▶ Comma-separated values (.csv)

## 7. Supplies

### a. Power requirements:

- ▶ 115/230 V switchable, 50/60 Hz, 400 VA

## 8. Safety and regulatory certifications

### a. Design and manufacture:

- ▶ Under a quality system registered to ISO 9001

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### Notes

- [1] Reference specifications are typical performance specifications for 1D GC using helium carrier gas (at a 5 Hz acquisition rate), and are not confirmed at install unless requested (note that this will incur additional engineer time on site).
- [2] IDL specification can only be demonstrated if an autosampler is part of the installed system. Values given are statistically derived at the 99% confidence level from the area precision (m/z 272) of eight sequential injections (splitless) of 0.5 µL 100 fg/µL OFN.

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