

Specification Sheet

GCMS-TQ8040 NX

Gas Chromatograph Mass Spectrometer



Smart Performance

Enabling highly sensitive simultaneous analysis of multiple components

Smart Productivity

Achieving superior productivity through dedication to efficiency

Smart Operation

Supporting easy creation of methods and data analysis

The fusion of these three Smart features makes this universal triple quadrupole GCMS applicable in any field, where it is sure to deliver the utmost in performance.

Gas Chromatograph

| | |
|------------------------------|---|
| Model | Nexis™ GC-2030 |
| Oven Temperature | Ambient + 2 to 450 °C |
| Retention Time Repeatability | <0.0008min* ¹ |
| Flow Control | Constant flow, constant pressure, constant liner velocity |

| | |
|----------------------------|-----------------------------|
| Injection Port Temperature | Ambient to 450 °C |
| AFC Pressure Range | 0 to 1035 kPa |
| Peak Area Repeatability | <1% RSD* ¹ |
| Oven Ramp Rate | Max 120°C/min* ² |

Mass Spectrometer

GCMS Interface

| | |
|-------------|---|
| Type | Direct connection with capillary column |
| Temperature | 50 to 350 °C |

Ion Source

| | |
|------------------|---|
| Type | Front access for easy maintenance |
| Ionization | EI (standard) EI, PCI, NCI (option) |
| Temperature | 140 to 350 °C |
| Filament | Dual, automatic switching with shield placed between filament and source box (patented) |
| Electron Energy | 10 to 200 eV |
| Emission Current | 5 to 250 µA |

Vacuum System

| | |
|-------------|--|
| Main Pump | Dual inlet turbo molecular pump 360 L/s (190 L/s + 170 L/s) (He) |
| Fore Pump | Oil rotary pump, 30 L/minute (60 Hz) Oil free pump, 110 L/minute (60 Hz) (Optional) |
| Column Flow | 10 mL/minute (He) |

DI Probe (Option)

| | |
|-------------|----------------------------|
| Temperature | Room temperature to 500 °C |
|-------------|----------------------------|

Mass Analyzer and Detector

| | |
|-------------------------|---|
| Mass Analyzer | Metal quadrupole mass filter with pre-rods |
| Collision Cell | UFsweeper™, 0 to 60 eV Argon collision gas |
| Mass Range | <i>m/z</i> 10 to 1090 |
| Mass Resolution | 0.4 to 3.0 u (FWHM) |
| Mass Axis Stability | ±0.1 u/48 hours (constant temperature) |
| High-speed Scan Control | ASSP™: Advanced Scanning Speed Protocol |
| Scan Rate | 20000 u/second (Q3 Scan) |
| Minimum Event Time | 3 msec (maximum 333 scans/second) |
| Maximum Transitions | 16 transitions/event |
| Maximum Events | 2048 Events |
| Minimum Dwell Time | < 0.5 msec |
| Maximum MRM Speed | 800 MRM transitions/second |
| Detector | Secondary electron multiplier with patented Overdrive Lens and conversion dynode 8 × 10 ⁶ dynamic range |

Software

[GCMSsolution™ Ver. 4]

| | |
|---|--|
| Operation Modes: | Q1 Scan, Q3 Scan, Product Ion scan, Precursor Ion scan, Neutral Loss scan, Q1 SIM, Q3 SIM, MRM, Scan/SIM and Scan/MRM FASST (simultaneous Scan/SIM measurements) |
| Energy Savings: | Ecology mode |
| Insert Replacement: | Easy sTop |
| Method Wizard: | Smart MRM/SIM* ³ (Automatic SIM, MRM table creation) AART (Automatic Adjustment of Retention Time) |
| Library Search: | Similarity searches using retention indices (Compatible with multiple retention index groups) Up to 10 libraries can be configured |
| Instrument Tuning: | Automatic (EI, CI, NCI) |
| Quality Control: | Accuracy control QA/QC function, instrument control system check function, user control security function |
| Measurement Data Control: | Optimal compound structure format for GLP |
| Maintenance Support: | MSNAVIGATOR |
| Report: | Flexible report creation, templates |
| Multisample Quantitation Assistance: | LabSolutions Insight™ |
| Library (optional): | NIST, Wiley, FFNSC Library (Flavor and Fragrance) |
| Database (optional): | Smart Pesticides Database™ Smart Forensic Database™ Smart Metabolites Database™ Smart Environmental Database™ |
| Semi-quantitative database (optional): | Quick-DB™ for residual pesticide analysis Quick-DB™ for forensic toxicological analysis Off-Flavor Analyzer |
| Composition Estimation (optional): | MassWorks |

*¹ Auto Injector AOC-20i Plus; FID as the detector; tetradecane (2.5 ng to the column) split injection.

*² 230V type.

*³ Smart SIM uses Excel®.

Demonstration of Performance

EI MRM IDL:

10 fg Octafluoronaphthalene m/z 272 → 222 IDL ≤ 4 fg

- IDL (Instrument Detection Limit) is statistically calculated from peak area repeatability of 8 times sequential analyses at 99% confidence level.
- Demonstration of Performance can be confirmed at installation upon request. IDL will be tested only with the auto injector.

Installation Checkout Criteria

EI Scan S/N:

1 pg Octafluoronaphthalene m/z 272 S/N ≥ 1500

EI MRM S/N:

100 fg Octafluoronaphthalene m/z 272 → 222 S/N ≥ 18000

CI MRM S/N:

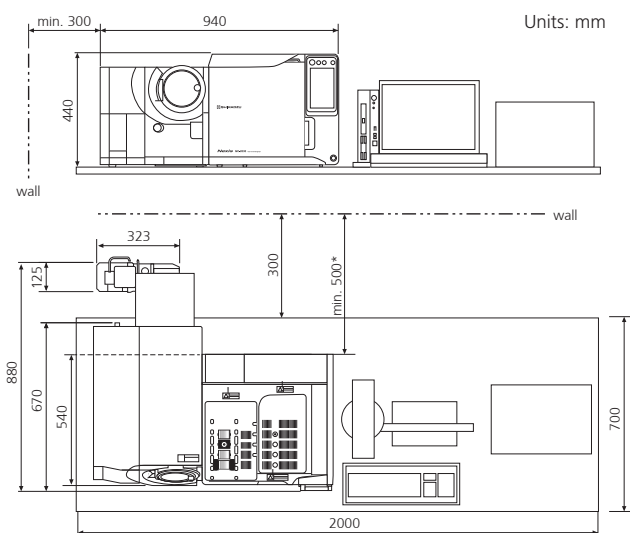
1 pg Benzophenone-*d*₁₀ m/z 193 → 110 S/N ≥ 2000

NCI SIM S/N:

100 fg Octafluoronaphthalene m/z 272 S/N ≥ 4000

Typical Installation

Weight: GC-MS unit 110 kg and auxiliary pump 10 kg



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