

Pegasus[®] BT 4D

with QuadJet[™] Thermal Modulator

System Performance Sheet

Analytical Performance GCxGC

| | |
|---|---|
| Detection Limit | Signal to noise ≥ 10 for injection of 10 fg of OFN @ 200 spectra/sec |
| IDL | < 5 fg for 8 replicate injections of 10 fg of OFN |
| Spectral Acquisition Rate | Up to 500 spectra/sec |
| Linear Dynamic Range | ≥ 4 orders |
| Minimum Peak Width, FWHH* | 60 ms |
| Typical Peak Width, FWHH* | 60-200 ms |
| Second Dimension Retention Time Reproducibility, St Dev | 10 ms |
| Column Flow Compatibility | Direct (no split) |
| Flow Rate | Recommended 1 to 2.0 mL/min of He |
| Peak Tailing Factor of Methyl Undecanoate | < 1.5 |
| Hydrogen Carrier Gas GCxGC | Yes |
| LN ₂ Modulator Volatility Range | C ₄ to C ₄₀ |
| Cryogen-Free Modulator Volatility Range | C ₈ to C ₄₀ n-alkane |

Software Functionality

Fully integrated to include all acquisition, GCxGC control, data processing, and reporting; ChromaTOF brand software (v 5.x)

Automated Deconvolution of GCxGC data

Variable Modulation (within run)

Fast Target Analyte Peak Finding (TAF)

Fully integrated GCxGC hardware support for liquid nitrogen and cryogen-free modulation

3D GCxGC views (contour, wireframe, and surface)

Simply GCxGC[®] and GCxGC Column Calculator

Classify regions on 3D GCxGC views and by mass filters

General Application Column Set and starting method provided

Easily switch to 1D mode while in 2D setup

*Depends on 2nd dimension column and conditions



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Thermal Modulators (Dual Stage, QuadJet)

| | |
|---|---|
| Coolant | |
| LN ₂ Modulator | Liquid nitrogen |
| Cryogen-Free Modulator | Immersion Cooler |
| Minimum Temperature | GC oven temperature +3 °C above the GC oven temperature for ambient-cooled GC ovens, typical +30 °C |
| Maximum Temperature | 400 °C |
| Maximum Heating Rate | 40 °C/minute |
| LN ₂ Modulator Cold Jet Flow, Gas Pressure | ~6 lpm/30 psi (2.07 bar), dry nitrogen (dew point < -50 °C) with periodic defrosting as needed |
| Cryogen-Free Modulator Cold Jet Flow, Gas Pressure | ~10 lpm/30 psi (2.07 bar), dry air (dew point < -50 °C) with periodic defrosting as needed |
| Hot Jet Flow, Gas Pressure | ~20 lpm/30 psi (2.07 bar), dry air |
| Modulation Periods | 1 to 65 seconds |
| Hot Pulse Duration | Minimum, 100 ms; 400 ms typical |

Secondary Oven

| | |
|----------------------------|---|
| Minimum Temperature | GC oven temperature +5 °C above ambient-cooled GC ovens |
| Maximum Temperature | 400 °C |
| Heating Rate, Maximum | 40 °C per minute |
| Cooling Gas, Flow Pressure | Air, ~180 lpm/30 psi (2.07 bar) (same gas source as hot jets) |

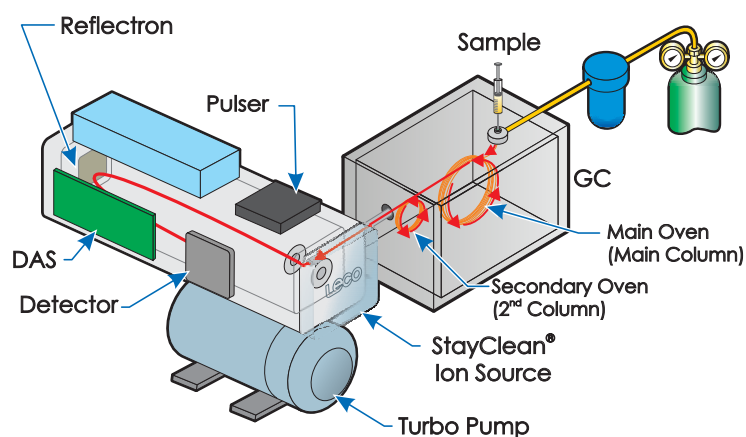
Liquid Nitrogen Dewar (LN₂ Modulator only)

| | |
|------------------------|--|
| Volume | Approximately 2 liters |
| Usage for Single Fill | Approximately 1 hour per fill, depending on modulation parameters |
| Usage for 160 L Tank | Approximately 48 hours, depending on operating parameters |
| Liquid Nitrogen Source | Fill GCxGC dewar from low-pressure (typically 22 psi [1.52 bar]) liquid nitrogen dewar |

Compatible Autosamplers

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|--|
| Agilent 7650 Autoinjector; Agilent 7693A Autoinjector (Large sample tray compatible) |
| LECO L-PAL3 Series 1 & 1.5 Liquid/HS/SPME/ITEX/SPME Arrow, and Automatic Tool Exchange (ATX) Autosampler |
| Other autosamplers can be used via contact closure and 3rd party software control |

GCxGC-TOFMS Diagram



For theory of operation, refer to the GCxGC Spec Sheet (209-184-001).

For analytical parameters for the Pegasus BT, refer to the Pegasus BT Spec Sheet (209-251-001).

Patents
US Pat. No. 9,123,521; US Pat. No 7,501,621; PRC Invention Patent ZL201380021654.6
PATENT PENDING

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