amaZon SL

- Setting New Standards in Performance, Simplicity and Value

Ion Trap MS

Innovation with Integrity

Best-In-Class Ion Trap Mass Spectrometer for Routine Analysis

The amaZon SL entry-level system is based on Bruker's advanced amaZon ion trap series and delivers best-in-class analytical performance, enhanced productivity and efficiency – all tailored to your needs.

Together with high sensitivity – thanks to proprietary Dual Ion Funnel technology – and fast data acquisition at high scan speeds and mass resolution, this ion trap delivers uncompromised LC/MS^n data quality and flexibility at an affordable price.

Bringing innovative trap technology within the reach of every analytical lab

The amaZon SL sets a new standard in ion trap excellence, making high-quality and high-confidence chemical analysis affordable for any analytical lab.

By enabling rapid and sensitive identification, characterization and structural confirmation of compounds, the amaZon SL is the robust, all-purpose solution to a wide variety of chemical, environmental, metabolic or forensic challenges:

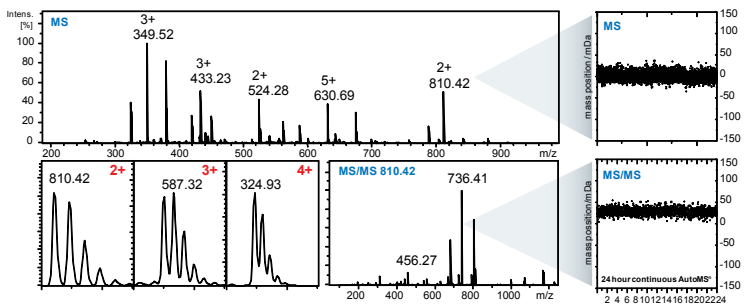
- General LC/MS/MS chemical analysis
- Chemical structure confirmation by MS^n
- Screening applications with fast polarity switching and MS/MS library searching
- Quality control, synthesis control and process development
- Metabolite ID & profiling
- Copolymer analysis by GPC-MS/MS technology

Ease of Use

MS and MS/MS spectra of a mixture of peptides. The enhanced resolution scan provides fully resolved peaks up to a charge state of 4+. The observed mass accuracy for the precursor ion at m/z 810 and the fragment ion at m/z 736 is absolutely unrivalled for ion trap instruments.

A continuous AutoMS^n experiment over a period of 24 h demonstrate the excellent robustness of the instrument with regard to an extremely stable mass position of the detected ions.

Robustness



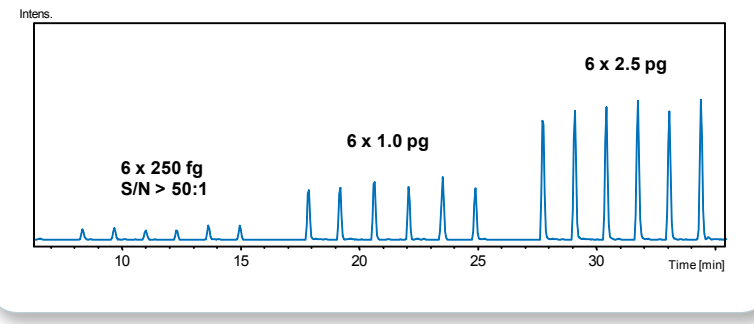
Performance and reliability

The amaZon SL stands for excellent performance and reliable, robust operation. MS and MS^n data sets deliver high sensitivity, resolution of multiply charged ions and class-leading, confident mass assignment.

Simple and flexible quality & synthesis control

The flexible APCI source also offers the possibility to work with the direct injection probe (DIP) for the analysis of solid samples. This enables a fast and direct identification of compounds from organic syntheses, process development, etc.

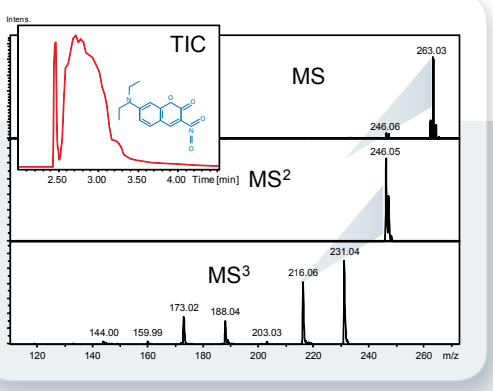
Sensitivity



MS/MS sensitivity for multiple injections of reserpine. S/N ratios > 50:1 are reproducibly obtained using 250 fg column loads.

Solid Samples

The direct probe ion source allows the straightforward analysis of liquid and solid samples without tedious sample preparation. The example shows the unambiguous identification of a synthetic compound using MS^3. The information provided by MS^2 alone is not sufficient due to non-specific water loss. Samples were kindly provided by SiChem GmbH, Bremen, Germany.



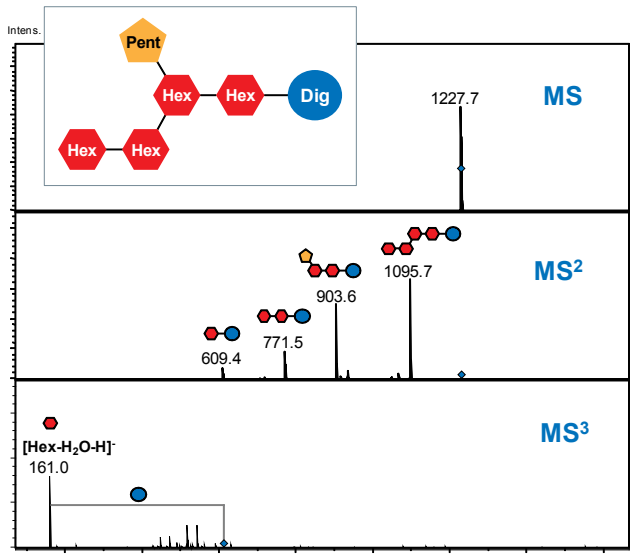
Compound Screening & ID

MSⁿ for structural elucidation and compound screening

Single fragmentation pathways in MSⁿ steps allow observation of side-chain losses and enable verification or even de-novo elucidation of molecular structures. Compounds can easily be screened and identified by comparing results with reference spectra stored in MSⁿ libraries.

- Robustness and ease-of-use make amaZon SL perfect for automated QC
- Compass™ OpenAccess enables non MS-experts to run samples or batches using predefined methods

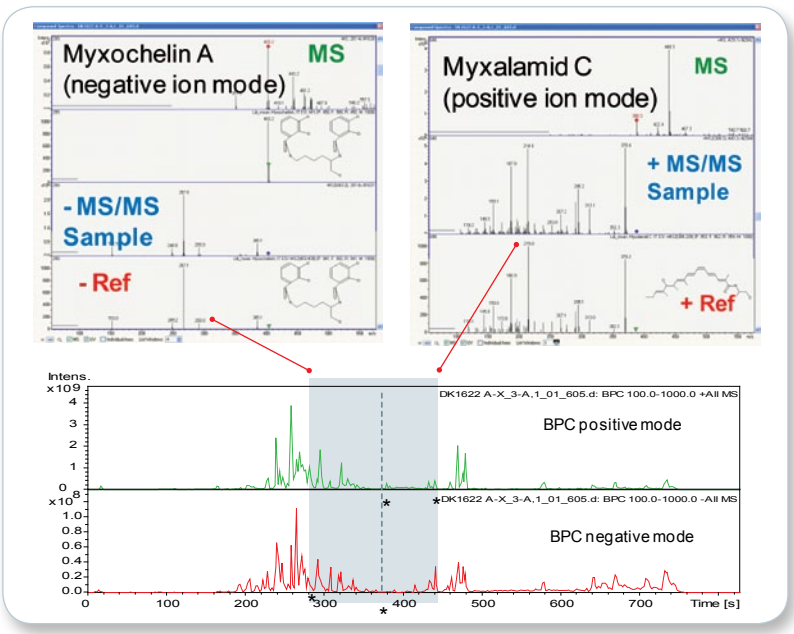
Elucidation of glycan structures



MSⁿ enables characterization of digitonin, a steroid glycoside. The complete glycan structure, down to the initial sugar unit, can be elucidated in consecutive MSⁿ steps.

Chemical synthesis, quality control

The amaZon SL can be used in an Open-Access environment without special training. The LC-MS walk-up solution allows a true multiuser environment – perfectly adapted to the robustness and ease-of-use of the amaZon SL. The example above shows the verification of a chemical's presence in a synthesis quality control workflow. The user receives the result as a PDF report. The color-coded 96-well plate image provides a quick overview for every sample in a full batch.



Quick and reliable identification of natural compounds from myxobacteria by library search. Sensitive and highly reproducible MS/MS data allow direct comparison of experimental data with library reference spectra. Fast polarity switching delivers detection of compounds in both ionization modes and ensures that compounds are not missed.

Superb Performance United with Simplicity and Reliability

Exceptional analytical value

- Patented Dual Ion Funnel technology delivers superior sensitivity in the low femtogram range
- Fast data acquisition with scan speeds up to 32,000 u/s at full isotopic resolution provides high duty cycles ideal for UHPLC coupling
- SmartFrag™ algorithm ensures optimal, reproducible fragmentation for MS/MS library searches
- On-the-fly polarity switching (delay < 80 ms) for highly efficient compound MS/MS screening
- Fragmentation up to the MS^{11} stage, enables detailed structural investigation of compounds

Flexibility in your daily work

- The amaZon SL is fully integrated into the Bruker Compass™ software suite, allowing flexible use and full control of a wide variety of HPLC, UPLC and nanoLC systems
- The instrument is fully compatible with any Bruker API source, giving access to multiple ionization methods, such as ESI, APCI, APPI, and nanoESI

Reliability and robustness

The amaZon SL is the latest product of over two decades of Bruker ion trap technology development.

- Robust, proven ion trap technology combined with the latest hardware controllers makes the amaZon SL a reliable long-term partner for daily laboratory work
- Low maintenance requirements and reliable hardware make the amaZon SL ideally suited for open access environments, such as in synthesis control or general QC

Simple, intuitive operation modes

The SmartLine software suite provides extremely easy and quick access to analytical answers.

- Smart and intuitive automation routines for calibration, tuning and data post-processing.
- Simplified GUI
- Compass™ OpenAccess enables use of the amaZon SL by multiple, non-expert, walk-up users

Turning ideas into successful analyses

The outstanding performance of amaZon ion trap mass spectrometers is based on and secured by a series of exclusive, patented technologies.

Patent	Benefit	Current amaZon-related patents world-wide
Dual Ion Funnel Source	Mass-independent ion transfer and sensitivity boost	DE 195 23 859 C2; GB 2 302 985 B; US 5,572,035 A; GB 2 402 261 B; US 7,064,321 B2
High Transmission Glass Capillary	Fast alternating polarity	DE 195 15 271 C2; GB 2 300 295 B; US 5,736,740 A
Non-linear Excitation for Ion Ejection	Ultrafast scan rates with unmatched mass resolution	DE 41 42 870 C2; GB 2 263 192 B; US 5,386,113 A; DE 41 42 869 C1; GB 2 263 191 B; US 5,298,746 A
Smart Charge Control	Optimization of the charge density inside the ion trap without the need for a time-consuming pre-scan	DE 43 26 549 C1; GB 2 280 781 B; US 5,559,325 A; DE 197 09 086 B4; GB 2 322 961 B; US 5,936,241 A; DE 100 27 545 C1; GB 2 364 821 B; US 6,600,154 B1

Technical Specifications

Superior high-capacity trap using the latest Dual Ion Funnel technology

- Quadrupole ion trap based on innovative technical design for the highest ion storage capacities
- Patented SmartICC™ for optimum ion accumulation control without prescan
- Mass-independent ion transmission using Dual Ion Funnel technology
- Standard-setting combination of mass resolution, scan speed and m/z range in MS and MS^n
- Fast polarity switching for acquisition of positive- and negative-ion spectra under LC conditions
- Reproducible spectra for high-confidence MS/MS library searches using SmartFrag™

Scan speed and resolution (MS and MS^n)

Scan Mode	Res	m/z	u/sec
UltraScan™	2^+ ions	2,200	32,000
Enhanced Resolution	4^+ ions	2,200	8,100
Extended Mass Range		4,000	27,000

Scan modes

- Full scan MS, MS/MS and MS^n for the most sensitive and reliable analysis of unknown compounds
- Neutral loss scan
- Multiple reaction monitoring (MRM) using MS/MS and MS^3
- Manual MS^n up to n = 11 in all scan modes
- AutoMS^n tree experiments with up to 5 fragment ions per stage

Data-dependent experiments

All forms of common data-dependent experiments – including preferred mass lists for automated feedback experiments from MetaboliteTools – are supported.

Source options

- Choice of API sources
- CaptiveSpray nanoBooster for nano LC applications
- Smart CE-MS coupling with grounded needle

Software options

- MetaboliteTools™ software for metabolite identification
- ACD Labs MS Manager for structural interpretation and classification
- Compass OA/QC: Web-based, guided operation of LC/MS systems for walk-up users
- Compass Security Pack™ for regulated environments

Support of HPLC and sample inlet systems from the following vendors: Thermo/Dionex, Agilent, VWR/Hitachi, Waters (incl. UPLC)

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