



Mass Guard technology

Promise and deliver. Again and again.

Safeguarding analytical integrity and sustaining peak performance: Introducing Mass Guard technology on the **SCIEX 7500+** and **ZenoTOF 8600** systems



The power of precision

Introducing Mass Guard technology

For analytical laboratories analyzing complex matrices, running high-throughput workflows, or those requiring ultra-high sensitivity, maximizing system utilization can be a challenge due to contamination from the complexity and volume of matrix the system experiences.

System contamination compromises signal fidelity, increases maintenance frequency, and ultimately disrupts productivity. While reaching low limits of quantitation is an important performance factor, it means little if the instrument is unavailable to use because it is contaminated. Our two products, the **SCIEX 7500+ system** and the **ZenoTOF 8600 systems** address this with a robust ion management innovation: Mass Guard technology.

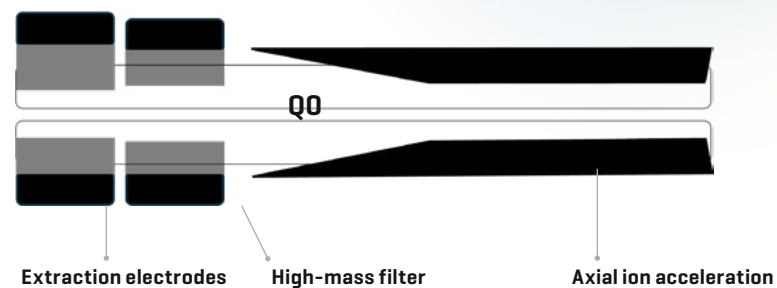
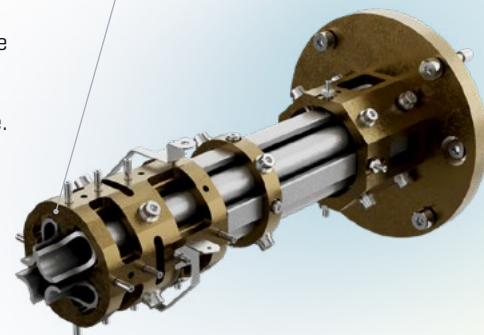
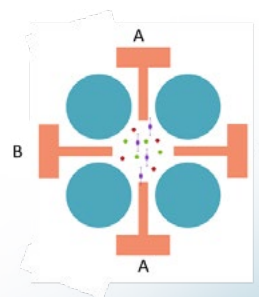
What is Mass Guard technology?

Mass Guard technology is proprietary technology that reduces the risk and frequency of instrument contamination through ion filtering and software improvements. A set of auxiliary electrodes within the T Bar assembly assist in filtering potentially contaminating ion within the Q0 region of the instrument. Ions are transmitted within a defined mass-to-charge [m/z] range while higher-mass ions that contribute to optical fouling and signal instability are filtered out.

How it works

Unlike collisional damping ion guides that principally cool and focus the primary ion beam, Mass Guard technology incorporates a T Bar assembly and helps prevent contamination by:

- Using auxiliary electrodes on the ion guide. This enables fast refill for rapid switching during which time the instrument filters away ions above the precursor mass of interest.
- Applying an asymmetrical DC potential difference between the two T Bar electrodes. This reduces radial confinement of ions traveling through Q0 where the T Bars are active and destabilizes ion trajectories.¹
- Operating at a higher-pressure regime. This allows the region to be more resilient to the accumulation of debris than – for example – the Q1 region.



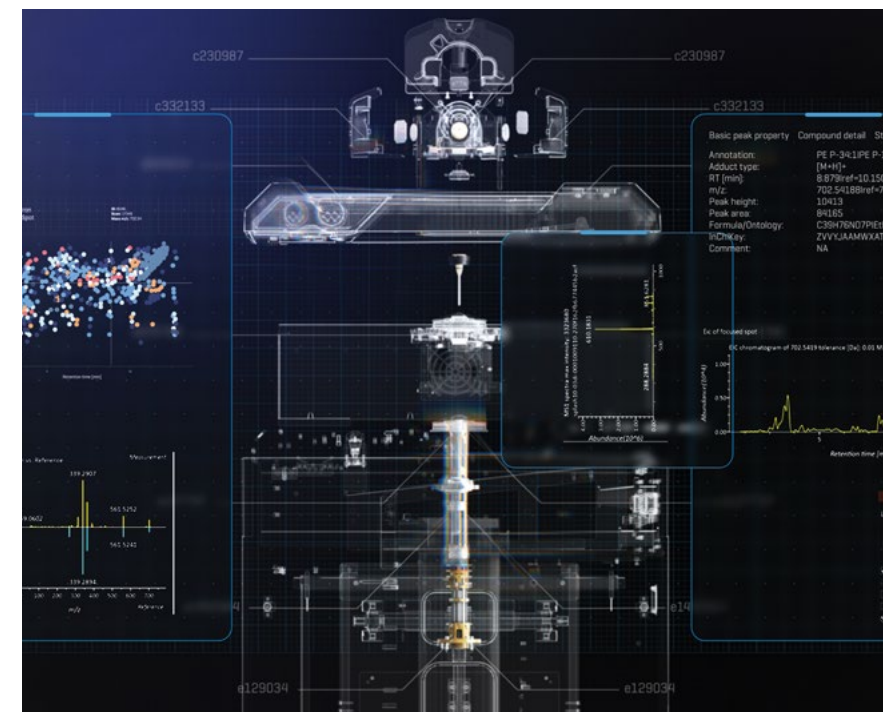
This unique dual-field configuration allows higher mass ions to be selectively filtered from the ion beam and directed to the T Bar electrode surfaces, effectively removing them from the beam and preventing contamination of Q1. In this way, the T Bar assembly functions similarly to a guard column in liquid chromatography, protecting the Q1 region, where key selectivity occurs, from contamination.

Why it matters

Mass Guard technology, enables:

- Reduction of system downtime.** With Mass Guard technology you can maintain the highest levels of performance in complex matrices up to twice as long*
- Increase in laboratory throughput and large batches of compounds.** By varying the applied DC offset potential on an MRM time scale, methods can support both very large batches and short chromatographic run times.
- Sustained sensitivity and quantitation across prolonged studies.** The unique method of filtering preserves the integrity of downstream optics and enhances signal-to-noise ratios, delivering stable performance over large batch sequences.

Studies show that systems equipped with Mass Guard technology maintain clean components, such as IQ1 and Q1, even after high-volume, dirty sample injections. Systems without this technology can exhibit significant contamination and signal degradation.



The SCIEX advantage

SCIEX triple quadrupoles are widely renowned for being highly robust under normal operating conditions. Therefore, breaking new ground in instrument resilience reflects the commitment of SCIEX to empower scientists with tools that maximize data quality, instrument uptime, and operational efficiency. Mass Guard is not just a protective feature, but a performance enabler that ensures only analytically relevant ions reach the detector. Having this technology on both the **SCIEX 7500+ system** and the **ZenoTOF 8600 systems** means increased resilience for both the most quantitatively demanding studies and qualitative experiments alike.

ZenoTOF 8600 system:

7500+ system:

1. Loboda A, Krutchinsky A, Loboda O, et al. Novel Linac II Electrode Geometry for Creating An Axial Field in a Multipole Ion Guide. European Journal of Mass Spectrometry. 2000;6(6):531-536. doi:10.1255/ejms.383

*Compared to current SCIEX technology

SCIEX Now support network

SCIEX Now

- Manage your instruments.
- Submit and manage support cases, track status and view history.
- Access online training courses and articles.
- Manage software licenses linked to your registered instruments.
- View and report critical instrument statistics when connected to StatusScope remote monitoring service.
- Be a part of the SCIEX community by submitting questions and comments.
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SCIEX Now learning hub

- SCIEX Now learning hub success programs provide LC-MS and CE training customized to meet your exact needs.
- With a selection of training methods and certifications available, you can build a mass spectrometry program that is most suited to your lab and users.
- Starting with a clear understanding of your desired learning outcomes, we aim to help you improve lab productivity and consistency by designing and delivering a program that is focused on knowledge advancement and retention.

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