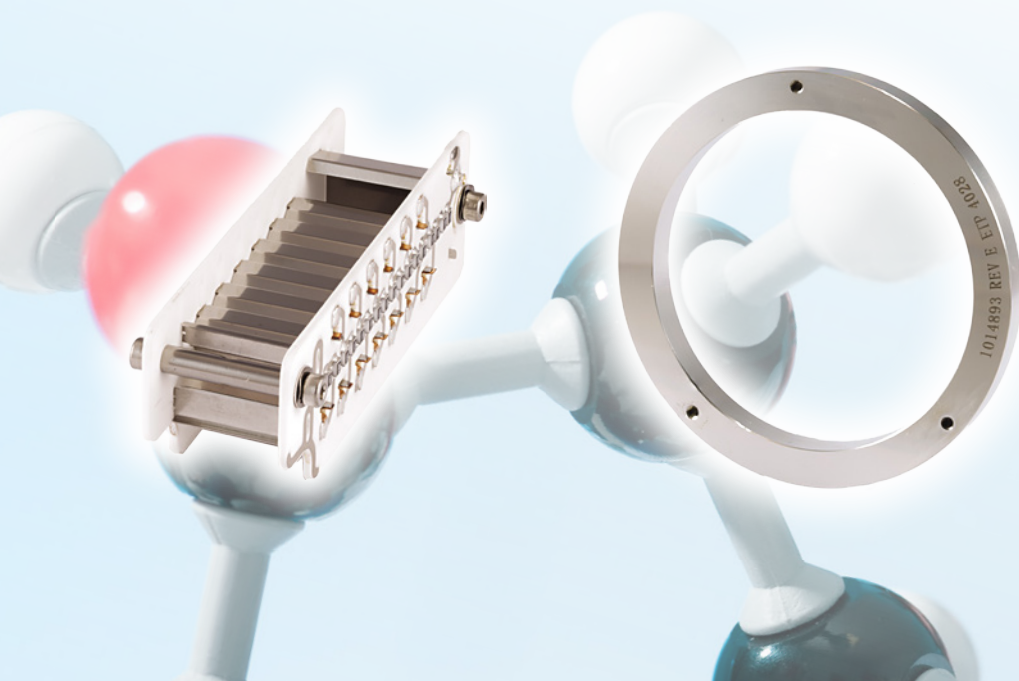
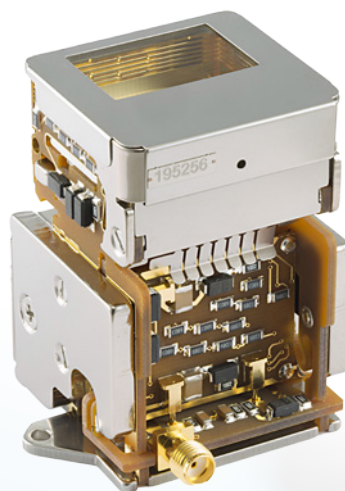
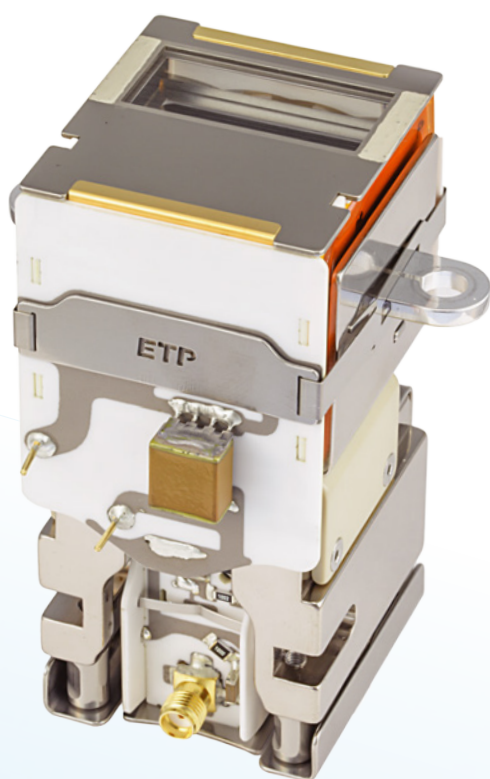


# ETP ion detect



ETP Ion Detection Products for Mass Spectrometry

## Making a World of Difference



# Leading a New Era in Performance

Today Mass Spectrometry platform developers are looking for ion detection technology that helps enable the adoption of these tools into new markets. ETP's range of OEM ion detection products make a clear difference with benefits that include:

## Longer Detector Lifetime

By improving electron-optical efficiency, ETP have developed a NEW range of detectors with vastly superior detector life. ETP's detectors can **last up to ten times longer** than current detectors (Figure 1).

## Gain Stability

Extended detector lifetime enables more **stable gain** operation. Less frequent instrument calibration enables the end user to focus on running samples and not the operation of the mass spectrometer.

## Improved Dynamic Range

ETP's ion detection systems are known to have the highest linear **dynamic range** available. Discrete dynode technology can be adapted to enable wider dynamic range making it the superior choice compared to single piece glass channeltron devices.

## Miniaturisation

To meet the demands of mass spectrometer miniaturisation, ETP have combined new technologies to develop a range of mini and micro ion detection systems for quadrupole and TOF instruments (Figure 3).

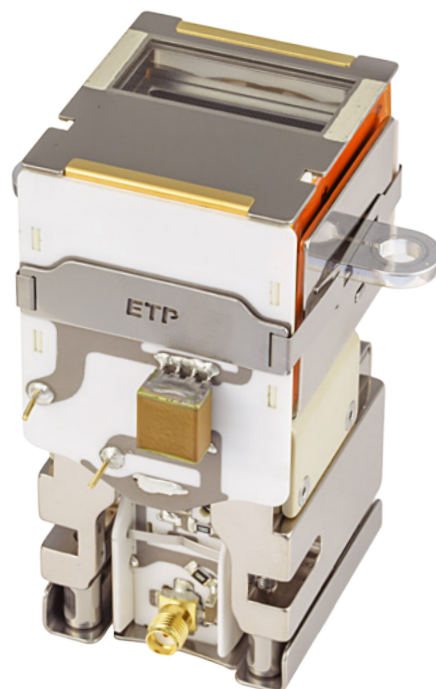


Figure 2: MagneTOF Plus, TOF mass spectrometry detector



Figure 3: DyneX RGA optimized for compact gas analysis systems

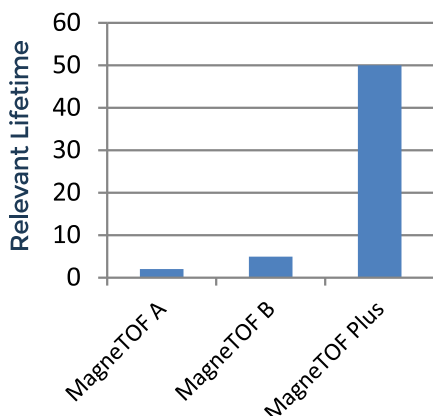


Figure 1: MagneTOF model comparison shows an order of magnitude increase in detector life from electron-optic optimisation, making it an incredibly cost-effective system

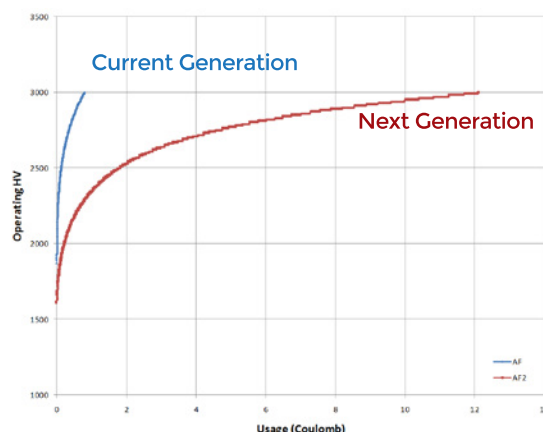


Figure 4: Detector lifetime comparison: next generation DyneX and standard ETP discrete dynode electron multipliers.

# Introducing ETP Next Generation Ion Detectors

Our latest range of detectors, created using innovative new technology, features superior life, facilitating the application of MS into new areas. INTRODUCING ETP's 2015 family of advanced ion detection products:

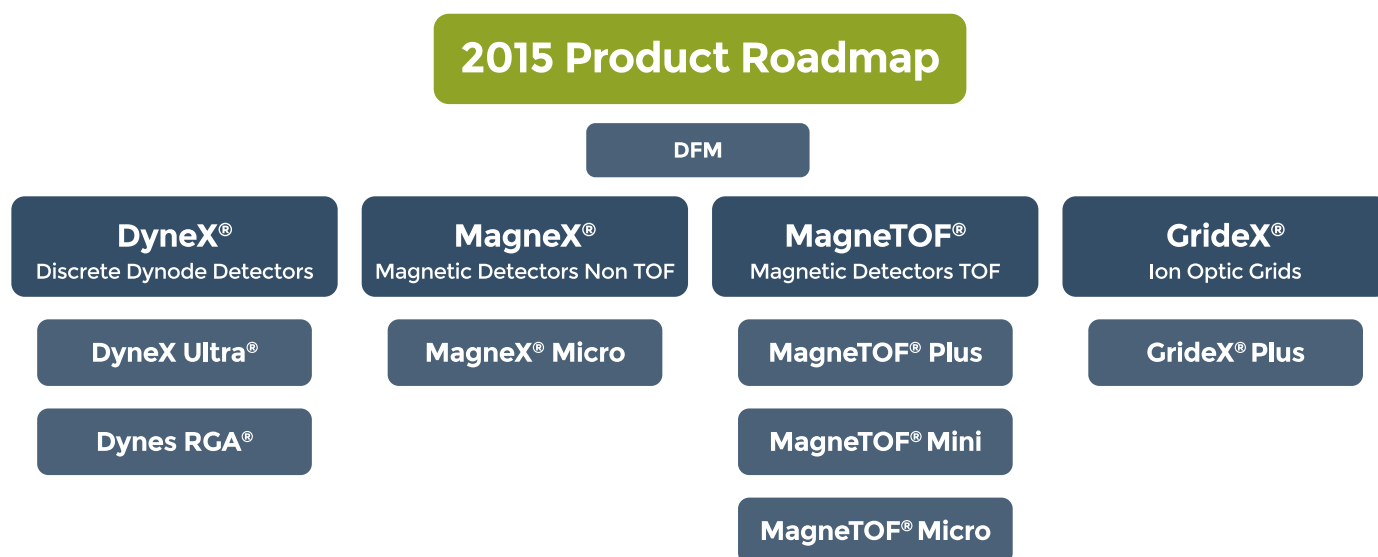


Figure 5: ETP's family of new generation detectors

## DyneX®

DyneX ETP's next generation discrete dynode electron multipliers incorporating new dynode technology and electron optical concepts (Figure 6)

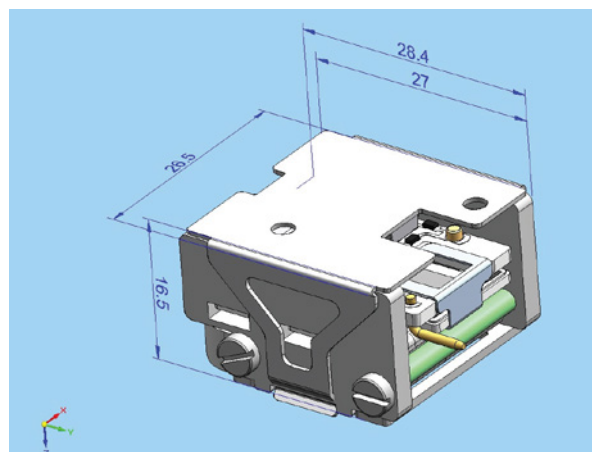
- Improved operating lifetime
- Extended dynamic range
- High degree of customization available



## MagneX®

MagneX magnetic detector technology takes the concepts deployed in ETP's award winning MagneTOF technology into none TOF applications

- Through miniaturisation bringing the power of magnetic detector technology to quadrupole and ion trap mass spectrometers
- Prototypes available late 2015



## MagneTOF®

Next generation MagneTOF magnetic detector technology for TOF applications.

- MagneTOF is rapidly replacing MCP's as the technology of choice for TOF mass spectrometers
- Advantages include superior dynamic range, long lifetime and robustness - the MagneTOF is stable in air eliminating the issues with MCP's caused by moisture adsorption

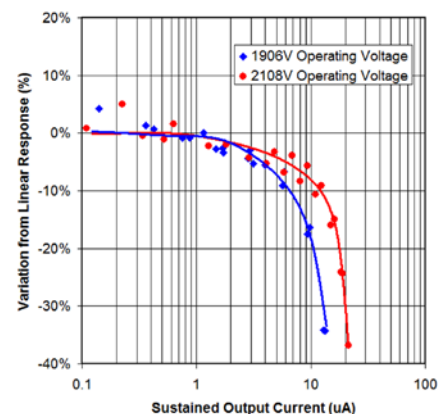


Figure 8: MagneTOF Plus sustained current linearity

## GrideX®

Improve the efficiency of TOF-MS mass spectrometers with the parallel wire TOF-MS ion optical grid, pioneered by ETP. We use a revolutionary manufacturing method developed using stretched 18μm tungsten wires to greatly improve the ion transmission efficiency of TOF-MS mass spectrometers, leading to enhanced analytical performance.

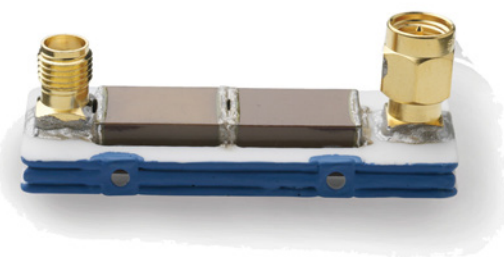
- <20μm flatness across a wide ion transmission area
- Greater than 92% ion transmission efficiency



Figure 9: Custom Ion transmission parallel wire grids for TOF MS

## Signal Processing

In today's TOF MS systems, the ion detection system is frequently floated to many thousands of volts, and a fast transient signal has to be collected from this environment back down to the ground for further processing. ETP's unique capacitive decoupling technology allows a <500ps pulse from one of our fast MagneTOF detectors to be processed with minimal impact on peak shape and line ringing. This optimises obtainable mass spectrometer resolution and mass accuracy even further.





# Your Development Partner

ETP partners from concept to product and has invested heavily in ensuring our manufacturing operations match the innovation of our R&D leadership.



Figure 11: R&D detector development facility

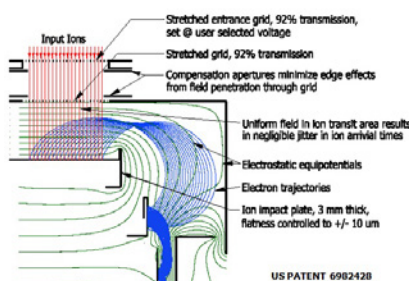
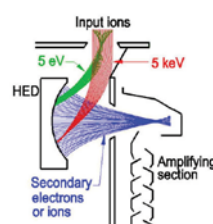
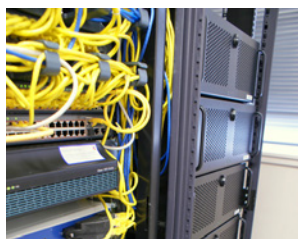
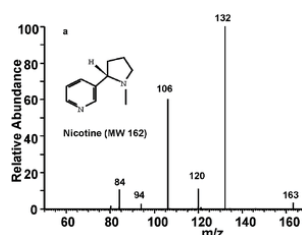


Figure 12: Computer simulation of detector ion optics is modelled to ensure optimum outcome.



Requirements



Simulation



Ion Optics Design



Optimised Product

Figure 13: Project outcomes usually follow controlled milestones including: Design Objective, Commercial Objective, Project Scope, Inputs/Output, Timelines and Risks.

## Total Solution Provider

We know how much our customers rely on the technology we pioneer. That's why at ETP we partner from the science to the final product and beyond to the lifetime management of the technology. ETP works with you as a fully integrated partner, our mission is your success.

## Prototyping

A development project is managed by a full array of professionals - ETP has the industries most experienced team of project managers, physicists and engineers. Our team provides the solutions you need, rapid prototype turnaround time and full verification and validation to ensure a product meets your requirements and specifications.

## Electron Optics Modelling

ETP has invested extensively in the development of electron optic software to meet the unique challenges of modern multiplier design. The software can be configured to rapidly model and analyse design scenarios.

## R&D Team

ETP works with mass spectrometer companies (OEMs) to discover, design, develop, test and manufacture the best ion detection systems available. The team includes physicists, electronics designers, mechanical engineering and fabrication specialists.

## Keeping Ahead of the Competition

As an OEM, you're under a lot of pressure to keep up with the demands of your customer base.

ETP helps OEMs compete by partnering research and development (R&D), testing, support, and operations costs, while speeding your time-to-market with a complete portfolio of world-class solutions and support.

# Manufacturing & Logistics without Compromise

Manufactured to ISO9001 quality system requirements



Quality  
ISO 9001

## Product Manufacturing

ETP works with partners from concept to product, and has invested heavily in ensuring our manufacturing operations match the innovation of our R&D leadership. Product is designed, prototyped and manufactured in a 26,000 square feet, state-of-the-art facility

## Quality & Reliability

All products are tested and validated to the most rigorous quality standards. ETP have 100% testing and inspection on all finished products. Each multiplier is shipped with performance test results.

## Accreditations

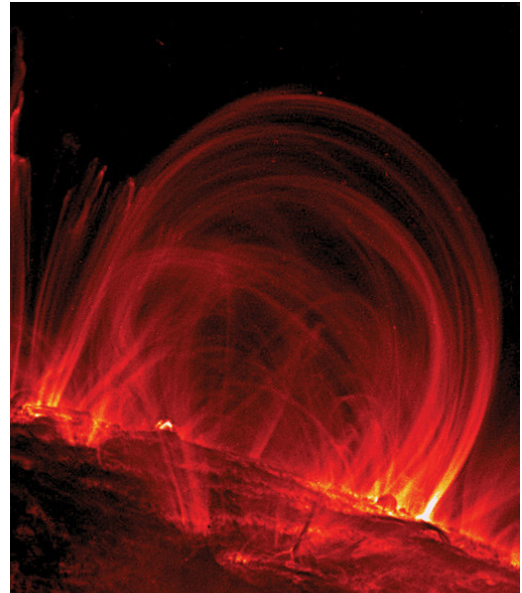
Products are assembled and tested in a controlled and validated clean room environment to better than ISO Class 7. Regulatory requirements such as RoHS, REACH and Conflict minerals are managed as part of our service.

## Flexibility

ETP listens to and works with its customers to design and manufacture products that make a difference.

## Supply & Logistics

ETP provide comprehensive strategies for order handling, supply and shipping ensuring you reduce cost, risk and complexity to meet your instrument demand.



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