

# ioniAPI-TOF



## Atmospheric Pressure interface Time-of-Flight (APi-TOF)

### Modular ioniTOF Platform | Double-Hexapole ION-GUIDE

The ioniAPI-TOF is IONICON's first Atmospheric Pressure interface TOF mass spectrometer. The instrument can be used either for measuring atmospheric ions thanks to its high transmission efficiency of about 1 % or serve as a platform for different ion sources (e.g. chemical ionization or electrospray) at atmospheric or reduced pressure.

The ioniAPI-TOF is capable of detecting ions in positive or negative ion mode. Interconnecting two APi-TOFs allows for simultaneous detection of positive and negative ions.

The very robust and flexible setup consists of two pressure stages equipped with the IONICON hexapole ION-GUIDE technology for ion transfer which enables a much broader range of detectable  $m/z$  compared to conventional APi-TOF designs. This makes ioniAPI-TOF instruments unique tools for gaining new insights in science.

Data which would inevitably be lost in conventional APi-TOFs due to mass discrimination effects, can easily be recorded in the ioniAPI-TOFs with their optimized design and performance of the IONICON hexapole ION-GUIDE technology.

- > Hexapole ION-GUIDE
- > Compact to high-resolution ioniTOF
- > Broad mass range transmission
- > Modular TOF-MS platform

Find out more:

[www.ionicon.com/api-tof](http://www.ionicon.com/api-tof)

# ioniAPI-TOF

ion  
GUIDE

## SPECIFICATIONS\*

### ioniAPI-TOF 6000

- Mass resolution: > 6000  $m/\Delta m$  (FWHM) for  $m/z > 79$
- Dimensions (w x h x d): 50x135x50 cm (excl. foreline pumps)
- Weight: < 100 kg (excl. foreline pumps)

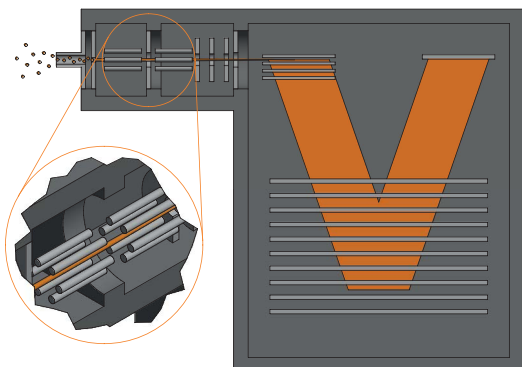
### ioniAPI-TOF 1000

- Mass resolution: > 1500  $m/\Delta m$  (FWHM) for  $m/z > 79$
- Dimensions (w x h x d): 50x95x50 cm (excl. foreline pumps)
- Weight: < 80 kg (excl. foreline pumps)
- Inlet system: equipped with membrane pump for acquiring an adjustable inlet flow of > 10l/min
- Interfaces: 8x DI/O, 2x AI, 2x AO (digital/analog I/O package on request)

\*Specifications are subject to change without prior notice.  
Product pictures and illustrations, detection limit and mass resolution may differ from actual configuration.

## ioniAPI-TOF BENEFITS

The unique system comprises an ionTOF and IONICON's exclusive inlet setup with several pressure reducing stages. The advanced IONICON hexapole ION-GUIDE technology allows to measure unreached mass ranges which are not comparable with other designs. ioniAPI-TOFs include two IONICON hexapole ION-GUIDEs, which transmit the ions from the inlet to the TOF region and additionally focus them to a narrow beam, yielding a much better sensitivity and resolution.



## The 2x Hexapole ION-GUIDE advantage

IONICON's long-lasting experience and know-how in ion chemistry are incorporated in the IONICON hexapole ION-GUIDE, which can be operated with a wider mass range and induces less fragmentation of sample ions than conventional systems.

The following figure shows a comparison between IONICON's ioniAPI-TOF with hexapole ion guides (red) and another manufacturer's API-TOF (blue). While the mass spectrum from the ioniAPI-TOF still offers substantial count rates for higher  $m/z$  from approx. 900 amu onwards, the ioniAPI-TOF also shows signals below 120 amu which are completely cut-off by the other API-TOF. Therefore, the ioniAPI-TOFs allow not only to investigate big clusters or larger molecules, but also small molecules at the same time.

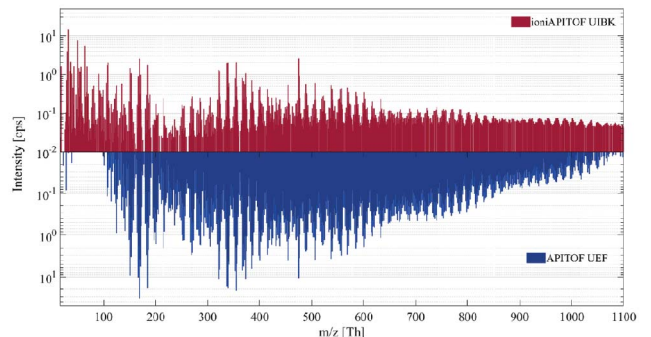


Figure: Comparison of the mass spectra obtained at the CLOUD experiment at CERN of the ioniAPI-TOF and the UEF API-TOF.

Source: Leiminger, M., et al., 2019.

One of the unique features of the ioniAPI-TOF is its design as a multi-stage TOF which provides high flexibility in your choice of the desired mass resolution range.

From our shortest flightpath with the ioniAPI-TOF 1000 where we achieve a resolution of up to 2000, to the medium range instrument ioniAPI-TOF 4000 with a resolution of > 4000, the ioniAPI-TOF 6000 with a resolution > 6000 and now also the ioniAPI-TOF 10K with a mass resolving power beyond 10000, we offer the perfect solution.

Another advantage of the ioniAPI-TOF instruments is the possible interconnection between two ioniAPI-TOF's which would allow to measure the whole world of ions, one instrument in positive and the other in negative ion mode.

Expect utmost versatility for your project with the ioniAPI-TOF platform!