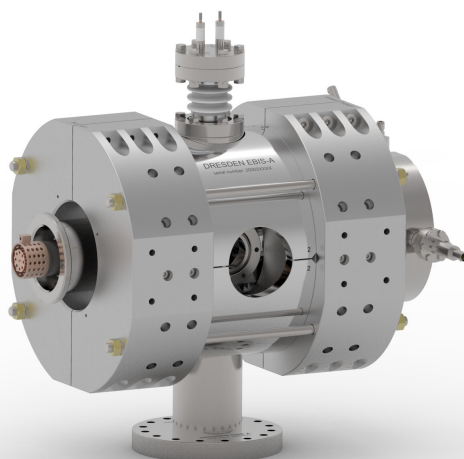


# DRESDEN EBIS-A

- A HIGH PERFORMANCE PERMANENT MAGNET ELECTRON BEAM ION SOURCE-



Dresden EBIS-A

The Dresden EBIS-A is an electron beam ion source able to produce ions up to the highest charge states of practically all elements of the periodic table. It delivers beams of protons, alpha-particles, various highly charged ion species, as well as molecular fragments.

## OVERVIEW OF MEASURED ION OUTPUT

ION SPECIES	IONS / s (DC)	IONS / PULSE
H <sup>+</sup>	$2 \cdot 10^{10}$	$1 \cdot 10^8$ at 100 Hz
C <sup>4+</sup> (helium-like)		$6 \cdot 10^8$ at 2 Hz
C <sup>6+</sup> (fully ionized)		$6 \cdot 10^7$ at 2 Hz
Ar <sup>8+</sup> (neon-like)	$2 \cdot 10^8$	$1 \cdot 10^7$ at 10 Hz
Ar <sup>16+</sup> (helium-like)		$7 \cdot 10^6$ at 1 Hz
Ar <sup>18+</sup> (fully ionized)		$1 \cdot 10^5$ at 1 Hz
Fe <sup>24+</sup> (helium-like)		$6 \cdot 10^5$ at 0.3 Hz
Fe <sup>26+</sup> (fully ionized)		$1 \cdot 10^5$ at 0.3 Hz
Kr <sup>26+</sup> (neon-like)	$2 \cdot 10^6$	
Xe <sup>44+</sup> (neon-like)		$3 \cdot 10^5$ at 0.2 Hz
Au <sup>51+</sup> (nickel-like)		$5 \cdot 10^5$ at 1.4 Hz
Au <sup>60+</sup>		$1 \cdot 10^4$ at 0.4 Hz

## SCOPE OF DELIVERY

- EBIS-A incl. all electron and ion optical electrodes, bakeable permanent magnet system and high voltage protection shields readily installed
- power supply units for the operation of the ion source
- control system including computer and software

## OPTIONAL EQUIPMENT

- vacuum system (turbo pump, fine vacuum, vacuum gauge, precision gas inlet valve)
- spare electron gun head (with 0.5 mm / 1.0 mm / 1.5 mm cathode)
- 19" rack for power supplies and measurement equipment
- injection kit for element injection through volatile compounds (MIVoC)
- metal ion injection kit incl. quadrupole beam bender and liquid metal ion source
- x-ray spectroscopic equipment (detector, Be-window, time and energy resolved x-ray detection electronics TERX)
- heating tent incl. temperature control
- small, medium or large ion beamline for ion charge state separation
- ion acceleration / deceleration solutions

## TECHNICAL PARAMETERS

### DRESDEN EBIS-A PARAMETERS

max. electron current	200 mA
max. electron energy	20 keV
magnet system	bakeable NdFeB permanent magnets
magnetic induction on axis	600 mT
trap length	60 mm
beam emittance	< 10 mm mrad
ion pulse width	50 ns to 100 $\mu$ s
ionization factor	> $1 \cdot 10^{22} \text{ e/cm}^2$
weight	125 kg (275 lbs) with magnets
dimensions (length x width x height)	ca. 640 mm x 400 mm x 605 mm
cooling water	1.5 l/min at 3 bar
vacuum conditions	UHV ( $1 \cdot 10^{-8}$ mbar and better)

## CONTACT

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