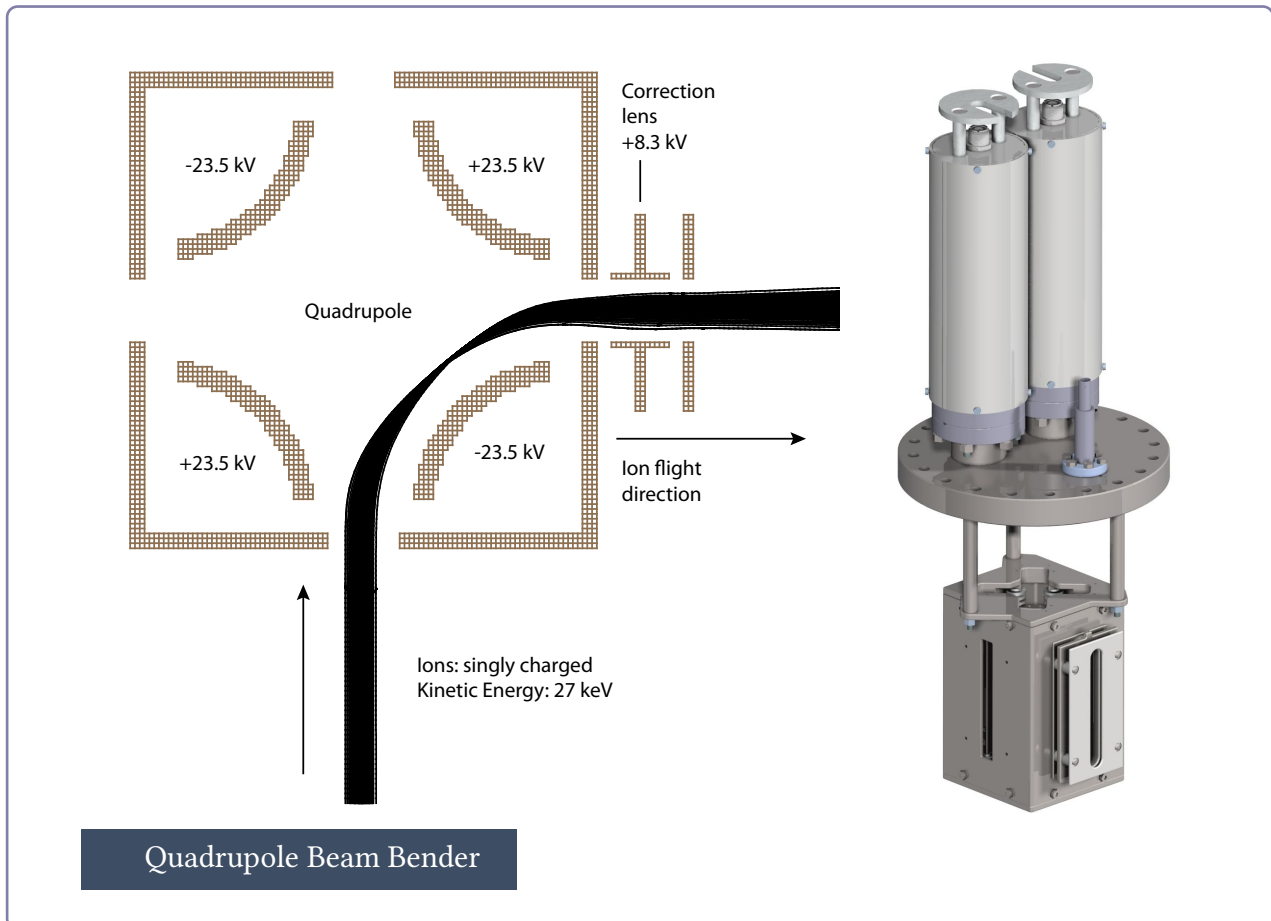


# QUADRUPOLE BEAM BENDER

- ELECTROSTATIC  $\pm 90^\circ$  DEFLECTION OF CHARGED PARTICLE BEAMS-



The DREEBIT Quadrupole Beam Bender is an ion optical device designed to bend charged particle beams with kinetic energies of up to 25 keV per charge by an angle of  $90^\circ$ . The deflection is realized by quarter-pipe electrodes set up perpendicularly to the direction of the incoming ion beam in a typical electrostatic quadrupole arrangement.

With this design, the Quadrupole Beam Bender can be used to guide a beam towards up to three different beamline sections downstream from the quadrupole chamber (directions  $\pm 90^\circ$  and straight). Additionally, the quadrupole is equipped with a lens to correct the shape of the beam after  $\pm 90^\circ$  deflection.

The beam deflection can be set continuously by using standard power supplies or the quadrupole can be operated in pulsed mode. Therefore, a high voltage pulser with built-in power supplies has been developed which is available as optional equipment to the Quadrupole Beam Bender.

## SCOPE OF DELIVERY

- Quadrupole Beam Bender mounted onto a DN 160 CF flange
- shielded HV feedthroughs
- HV connectors for attachment of customer-supplied cables

## OPTIONAL EQUIPMENT

- vacuum chamber
- power supplies for operation of the quadrupole
- high voltage pulser including power supplies, switching of all HV outputs between max. 90 % of max. voltage and ground potential, HV ramping time < 10  $\mu$ s, min. delay between two "HV on" phases of duty cycles 15 ms
- tailored HV cables

## TECHNICAL PARAMETERS

### QUADRUPOLE PARAMETERS

|   |                 |
|---|-----------------|
| max. $\pm$ voltage on quadrupole electrodes | 30 kV           |
| max. voltage on correction lenses           | 10 kV           |
| max. ion beam energy                        | 25 kV $\cdot$ q |
| ion orbit curvature radius                  | 40 mm           |
| entrance / exit slit diameter               | 12 mm           |
| quadrupole capacitance                      | < 500 pF        |

### GENERAL PARAMETERS

|  |                                  |
|--|----------------------------------|
| support flange                         | DN 160 CF, vertical installation |
| height incl. HV feedthrough shieldings | 550 mm                           |
| distance flange to beamline center     | 167 mm (or customer-specific)    |
| weight                                 | 10 kg (22 lbs)                   |
| bake-out temperature                   | 150 °C                           |

### INFRASTRUCTURAL REQUIREMENTS

|                                    |   |
|------------------------------------|---|
| vacuum conditions during operation | from $1 \cdot 10^{-10}$ mbar up to $1 \cdot 10^{-7}$ mbar |
|------------------------------------|---|

## CONTACT

**Headquarters Großröhrsdorf**  
Dreebit GmbH  
Dr. Daniel Kost  
Southwallstr. 5  
01900 Großröhrsdorf, Germany

Phone: +49-35952-420-236  
Cell: +49-174-2610-366  
E-Mail: [ibt.sales@dreebit.com](mailto:ibt.sales@dreebit.com)

