

EASY BEAM ELECTRON BEAM SOURCE FOR HIGH-RATE EVAPORATION

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Electron beams provide an efficient energy input during vacuum coating. High coating rates can be achieved with electron beam sources resulting in highly economical processes. Apart from the high power density and their versatility, electron beam sources are characterized by the fact that they can be adjusted quickly and precisely. Furthermore, electron beam-based evaporation processes can be easily scaled and are very clean.

In electron beam sources of the EasyBeam series, the electron emission from the cathode is stimulated by impinging plasma ions. The electron beam can thus be simply adjusted by changing the pressure of the gas that produces the plasma.

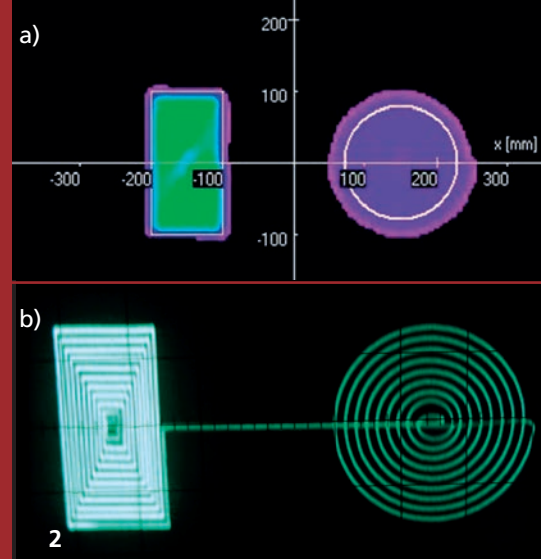
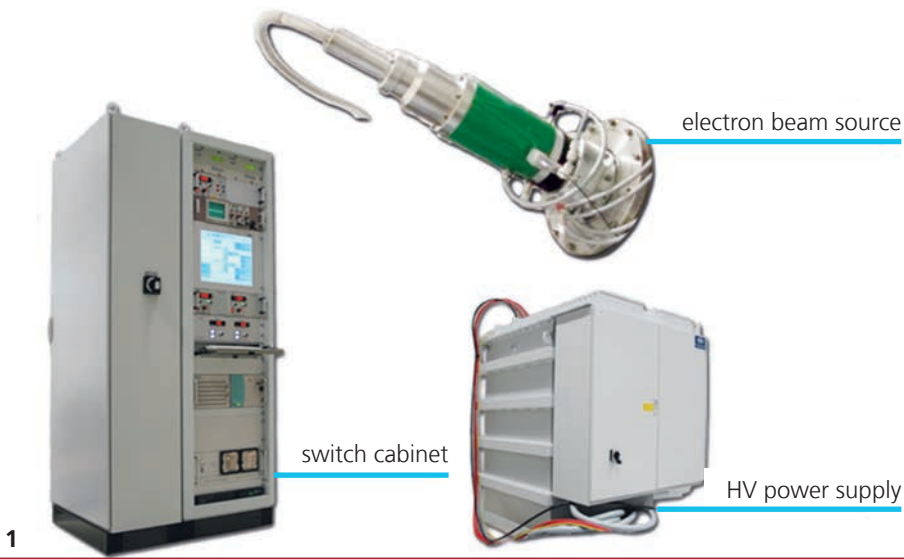
Beam sources of the EasyBeam series that are based on a high-voltage glow discharge have the following advantages:

- Simple and compact design
- No separate vacuum system needed
- A single high-voltage cable is sufficient

Investment costs for the electron beam high-rate evaporation are much lower than for conventional systems thanks to the compact and simple design of these electron beams sources.



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Applications

Beam sources in the EasyBeam series are ideal for high-rate evaporation to coat plastics, glass and metal surface. These sources can be used to apply layers for electromagnetic shielding (EMC) on displays, transparent scratch-proof, barrier or corrosion protection layers as well as decorative layers economically and with a high purity.

Software

The system's components are operated via a control computer which can also be accessed via web-based remote monitoring. The software allows manual or recipe-controlled use.

Hardware

A ready-to-use technology package consists of:

- Electron beam source
- Switch cabinet with control and supply units
- High-voltage power supply (HV) with arc protection circuit

We offer electron beam sources of the EasyBeam series in a wide power range:

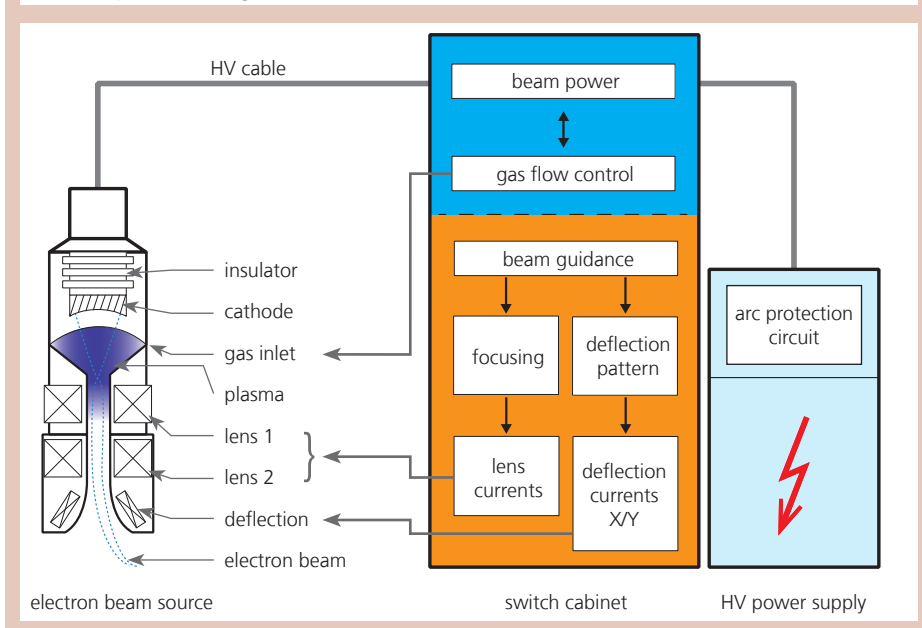
- Acceleration voltage: 10 ... 50 kV
- Beam power: 10 ... 150 kW
- Max. deflection angle: $\pm 15 \dots 45^\circ$

Customized parameter extensions or combinations can be provided.

Our offer

- Compilation of complete package solutions including beam control, arc protection circuit, high-voltage power supply, beam position and deflection generators
- Adaptation of the electron beam source to special customer requirements and development of special solutions
- Provision, integration and adaptation of optional extras such as:
 - Portable hand console for remote operation of the electron beam source
 - Evaporation crucible solutions
 - Static magnetic beam deflection field
 - Plasma activation systems
 - Substrate pre-treatment equipment
 - Substrate bias power supplies
 - Reactive gas systems
 - Rate monitor

3 Component diagram



- 1 Example of a technology package
- 2 (a) Programmed deflection pattern and (b) deflection pattern realized accordingly by the deflection unit for an evaporation of two crucibles with different intensities and geometric figures.



We focus on quality and the ISO 9001.