

High Voltage Upgrade for Balzers Electron Beam Evaporators

Support issues with Balzers High Voltage Generators?



For some time now Wordentec have offered a range of upgrade paths for Balzers BAK evaporators including replacement guns and fully integrated pc based control systems.

In some existing production applications it is not always acceptable to replace the tried and tested Balzers guns when considerable effort will be required to optimise the process with the new guns.

We can now offer a high voltage upgrade that enables the ESQ 110 and 113 guns to be retained, maintaining the pre-upgrade chamber geometry.

The upgrade package replaces the EHV110 control rack. The package comprises a modern solid state switch mode power supply, digital scan generator, filament transformer, crucible indexer, and high voltage feedthroughs.

The upgrade features tried and tested air cooled Ferrotec Carrera solid state high voltage generators, as used on our regular systems. Delivery power up to 12 kW can be provided.

Carerra



The Carrera series of power supplies uses primary switched mode technology to offer high efficiency and fast arc detection and recovery in a compact unit. Based on a modular design, the Carrera can be configured for maximum outputs ranging from 3kW to 12kW

Features

- Output power from 3 kW to 12 kW
- Sequential or simultaneous supply for up to three evaporators
- Primary switched mode power supply
- Arc detection and suppression within 1 μ s
- Full arc recovery within 3 ms
- Controllable arc management system
- Continuously variable high voltage supply from 4 kV to 10 kV
- Compact design
- CE certified

Genius



The programmable Genius deposition controller regulates all aspects of the electron beam deposition process. As well as controlling the high voltage and regulating the filament supply, the Genius also handles the magnet current supply to the coils of the electron beam evaporator.

All of the Genius functions are included on the remote control which can be used to manually set and control the evaporation process as well as to set all process and system parameters.

Access to the menu functions may be limited with three password protected user levels.

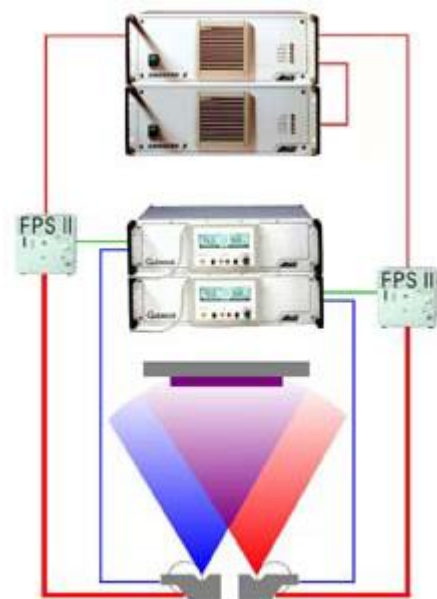
In order to achieve the best in film quality and uniform evaporant utilization, the genius can store a wide variety of evaporation parameters. Different data sets can then be applied to different phases of the process (eg. material melting and various coating phases). In addition to storing various beam sweep parameters, different high voltage values may also be set.

The Genius, used with a Carrera series power supplies allows up to three electron beam sources to be run from a single power supply.

There are 2 configurations:

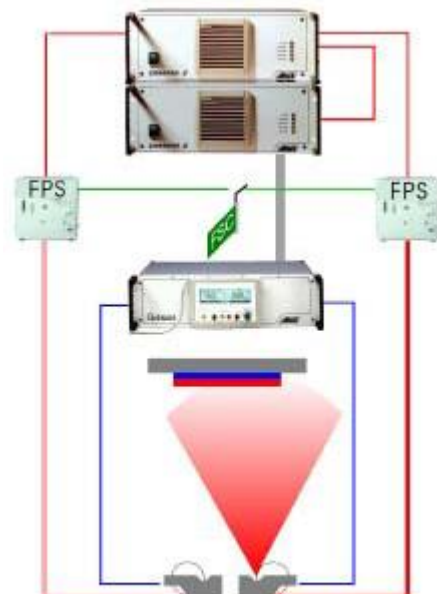
Simultaneous Deposition

For simultaneous evaporation from several electron beam evaporators each source is driven by a single Genius unit. As the emission current is directly recorded by the filament power supply FPS-II, the evaporators can be powered from a single Carrera high voltage power supply



Sequential Deposition

A Filament switch card can be fitted to the genius to enable selection and deposition from one of several evaporators within the vacuum chamber. For such a configuration each evaporator will require a dedicated filament power supply.

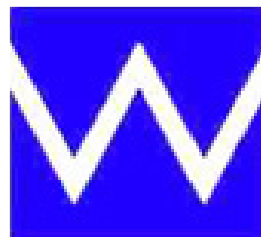




'Classic' BAK 600 System with EHV110 high voltage rack.



Upgraded Wordentec BAK600 System. Ferrotec Carrera high voltage supplies are fitted in the single control rack.



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