HIGH PERFORMANCE FINE FOCUS ION SOURCE

scientaomicron

A high quality upgrade for sample cleaning and depth profiling

The depth profiling upgrade integrates a high-quality focussed ion beam source seamlessly in your Scienta Omicron system. The hot filament ion source is a professional tool for sample cleaning, depth profiling with XPS or Auger electron spectroscopy. It can be used as a high-quality ion source for ISS/LEIS or as a low energy source for charge neutralisation.

Every upgrade includes a prior compatibility check by our Scienta Omicron system designers in Taunusstein and comes with suggestions for an individual system integration of the ion source.

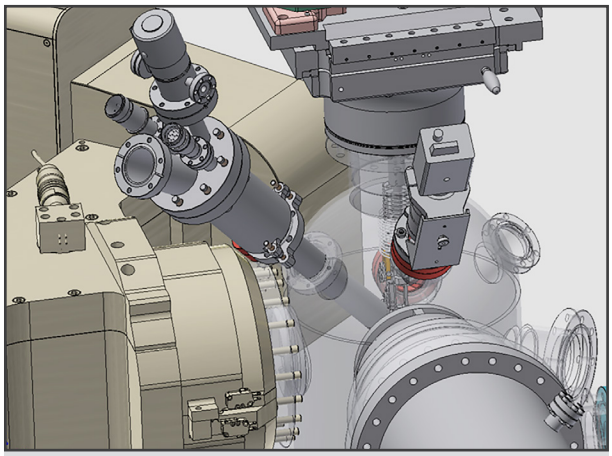
Two ion source models are available for different purpose:

- The **FDG15** is the basic model with Gaussian ion beam with variable spot size from 300 µm up to 10 mm. Differential pumping is possible, but not mandatory. We recommend this ion source model for sample cleaning and basic depth profiling.
- The **FDG150** comes in addition with a rastered small spot ion beam size with a minimum size of < 150 µm at 50 mm working distance over a maximum area of 10x10 mm and a keystone correction, which corrects projection effects when mounting the ion source at an angle. All this allows to obtain high quality depth profiles with flat sputter craters. We recommend differential pumping for this ion source.

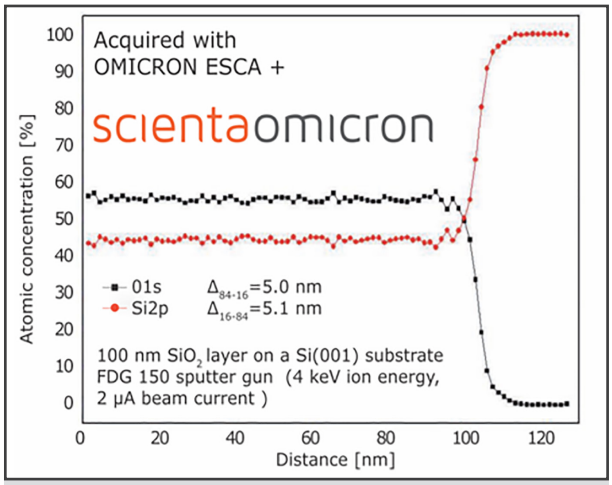
Both FDG models will be mounted on a **DN40CF** flange, are bakeable up to 180°C, have a port for differential pumping and an integrated port aligner which allows ± 3° adjustment range. A working distance between 30 and 300 mm is possible. The controller and a basic software package is included. Manual operation from the controller is also possible.

The FDG provides a high beam current intensity of > 4 mA/cm^2 at a working distance of 50 mm and a beam energy of 5 keV.

Several further options regarding system integration and automation are available.



FDG system integration example



Depthprofile FDG150 SiO_2

Read more about the technical details of the FDG and possible options on the next page.
Please contact us if you have any questions about the FDG and/or its system integration.

For more installation support, please ask for our skilled Scienta Omicron service personnel.

Please contact your local Scienta Omicron representative for more information.

Summary

Part number UF10000 Depth profiling upgrade for SO UHV systems

Possible options:

- UF10001 FDG150 ion source package (includes compatibility check)
- UF10002 FDG15 ion source package (includes compatibility check
- UF10003 manual gas dosing valve for Argon
- UF10005 Argon gas inlet assembly (without gas dosing valve)
- UF10006 Modification of one baking panel (with return of baking panel to Taunusstein/Germany)
- UF10007 One new baking panel
- UF10008 Matrix e-spec 4.x for automated depth profiling (with Argus CU analyser only)
- UF10010 Separate differential pumping with turbo and scroll pump (manually)
- UF10011 Separate differential pumping with turbo and scroll pump (pneumatic)
- UF 10012 Differential pumping through FEL
- UF10013 DCU for manual operation of the turbo pump
- UF10014 Mistral system integration (only for systems with Mistral control system)

Prerequisites:

- UHV system with base vacuum < $5 \cdot 10^{-9}$ mbar
- Free port DN40CF for sputter source

Technical specifications:

	FDG150	FDG15
Mounting flange	DN40 CF	DN40 CF
Working distance (WD)	30- 300 mm	30- 300 mm
Insertion depth	224 mm	173 mm
Minimum beam diameter (D)	< 150 µm (@ 5 keV and 50 mm WD)	< 300 µm (@ 5 keV and 50 mm WD)
Beam energy	10 eV – 5 keV	10 eV – 5 keV
Beam current density	>4 mA/cm^2 with > 5 µA, D < 200 µm (@ 5 keV and 50 mm WD)	>4 mA/cm^2 with > 5 µA, D < 350 µm (@ 5 keV and 50 mm WD)
Scan area	up to 10 mm x 10 mm (@ 5 keV and 50 mm WD)	n. a.

How to contact us:

Europe and other regions:
services@scientaomicron.com

North America:
services-NA@scientaomicron.com

China:
services-CN@scientaomicron.com

Japan:
services-JP@scientaomicron.com