

ARPES Capillary Upgrade

Highest flux density in a very small spot

Advantages:

- Reduced spot size
- Increased flux density
- Increased angular resolution
- Required for DA30 deflection operation
- Easy to install on site

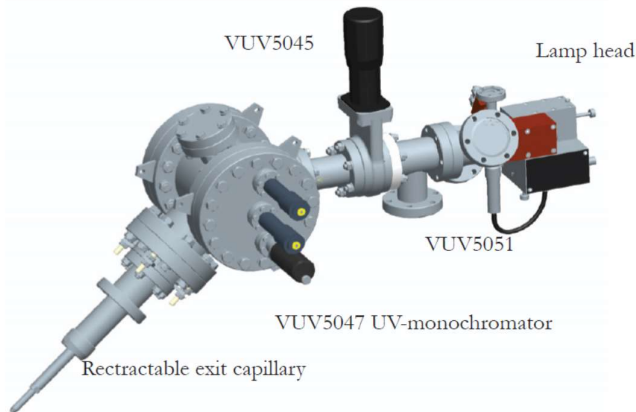


Figure 1: CAD illustration of the Scienta retractable VUV5k-package indicating the parts described below.

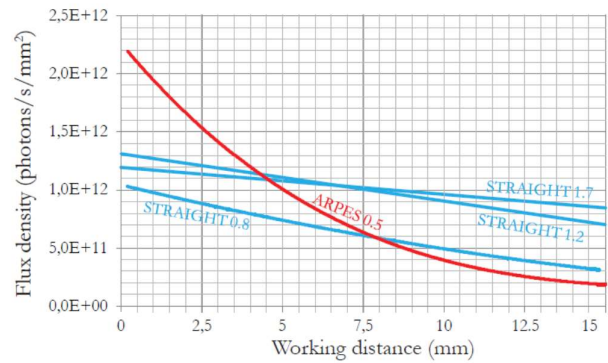


Figure 2: Realisable flux densities for different capillaries and working distances.

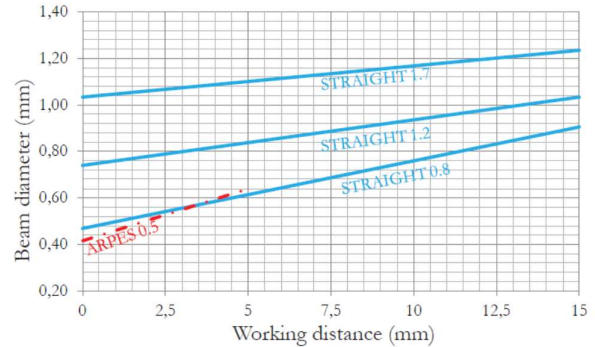


Figure 3: Realisable spot sizes (Gaussian FWHM) for different capillaries and working distances.

The Scienta Omicron Retractable VUV5k-package (schematically shown in figure 1) can be equipped with a newly developed exit stage. This exit stage contains a capillary custom made from glass with an exit inner diameter of 0.5 mm. This option offers the highest flux density in a very small spot. Figure 2 shows the flux density for the different capillaries available with the Scienta Retractable VUV5k package. It can be clearly seen that the new ARPES capillaries increase the flux density substantially. At the same time, these capillaries offer a very focussed spot size, see figure 3. With the 5 mm standard working distance, the flux density of the 0.5 mm ARPES capillaries is more than twice that of the straight 0.8 mm capillaries, although the spot size is similar. Furthermore, most older systems have a working distance of 10 or 15 mm. In that case, the intensity gain is much higher. The ARPES capillary upgrade package consists of one ARPES capillary and one dedicated holder, capillary nut. The Upgrade is customized to fit your existing analysis chamber.

The upgrade can be easily installed without the need for a Scienta Omicron technician on site, but we will gladly offer that service.

Please contact your local Scienta Omicron sales office for a quotation.

Summary

Part number:

- 200596 ARPES capillary Upgrade

Parts included:

- ARPES capillary
- Customized capillary nut (5 mm WD)

Prerequisites:

- VUV5047 retraction upgrade (see options below)

Onsite effort:

- Does not require SO Engineer on site

How to contact us:

www.scientaomicron.com
info@scientaomicron.com

Options:

Additional upgrades

In addition to the ARPES capillary upgrade, two other upgrades may be of interest, especially to users of older Scienta Omicron VUV5k sources.

- **VUV5051 differential pumping upgrade (200163)**

The Scienta Omicron VUV5051 differential pumping stage is placed between the lamp head and the monochromator (see figure 1) and improves the analysis chamber pressure during lamp operation. With this stage (and suitable pumping) a pressure in the 10-11 mbar range in the analysis chamber can be obtained.

- **VUV 5047 Upgrade (200260)**

Upgrade of a standard UV monochromator to one with a retractable capillary holder.

The ARPES capillary upgrade requires a retractable VUV monochromator, known as VUV5047. Customers who have earlier versions of the Scienta Omicron VUV5k package without retraction need to upgrade to retraction mechanism as well. This upgrade is called the Scienta Omicron VUV5047 upgrade, and contains a retraction mechanism with port aligner to be mounted at the monochromator exit port. The retraction mechanism is operated by turning an easily accessible knob on the monochromator. The retraction has 60 mm linear travel with two distinct positions, (1) measuring position and (2) retracted position.