



The AG5000 is a UHV compatible 'cold cathode' ion gun primarily designed for sample cleaning duties in surface analysis experiments. The Penning type discharge produces a high ion beam current for fast etching. The gun will operate at long working distance (typically 150-300mm) and mounts on a standard 70mm (2.75") UHV flange.

Energy range

The AG5000 operates from 0.3-5keV and is suitable for applications where a lower energy ion beam is required. It

is available with either a permanent magnet or an electromagnet (both are removable for bakeout). The electromagnet has the advantage that it can be switched off, rather than removed, when the ion gun is not in use, to ensure there are no stray magnetic fields which could interfere with experiments. For sample cleaning duties an inert gas such as argon is most commonly used. However, the AG5000 can also be operated with active gases such as oxygen, nitrogen and hydrogen. The gas is fed directly into the ion gun via a leak valve (not included) allowing the system to operate at a better vacuum compared to guns which require the chamber to be back-filled with gas. The vacuum level will depend on the gun operating conditions and the design of the pumping system, but is typically 3×10^{-6} mbar.

Ion beam spot size

Ion beam spot size is fixed for any given beam energy and is approximately 15mm at 10keV.

8524 power supply

The 8524 has few controls making the guns easy to use. The controls include an on/off switch, energy control potentiometer, digital meter and selector switch. The meter displays either beam energy or sample current. When measuring sample current a +15V bias is applied to the sample to suppress secondary electron emission which would otherwise lead to inaccuracies in measurement. A second potentiometer which allows control of the ion current at low energy is also fitted.