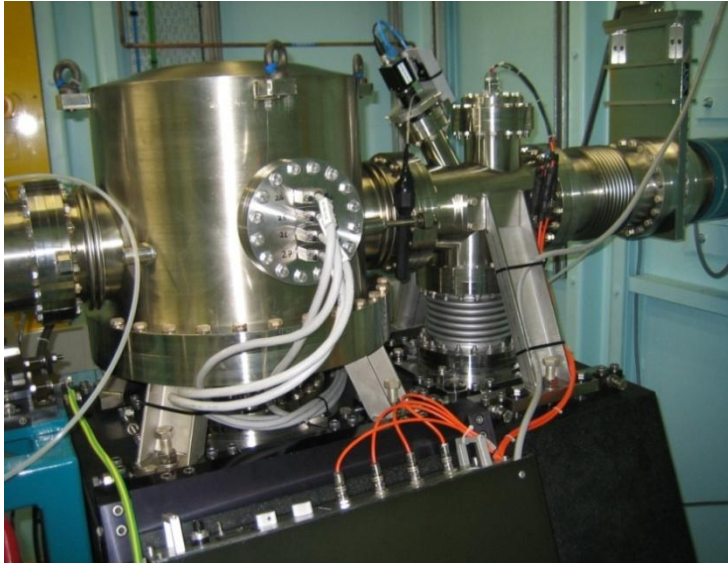


# Secondary Source & Beam Defining Apertures

## Features

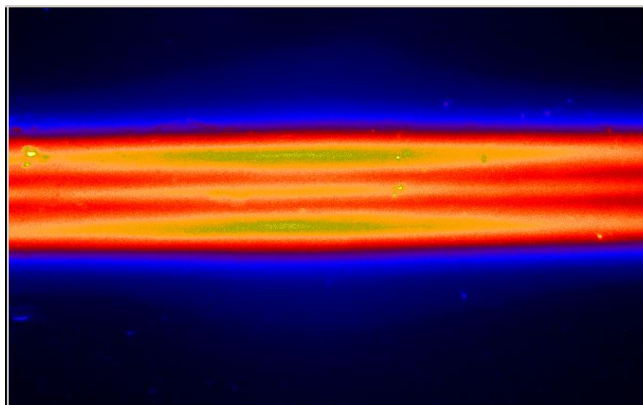
- Ultra stable granite block- measured amplification factor of 1.
- Ultra stable horizontal & vertical slit assembly.
- Sub micron accuracy flexure horizontal & vertical slit sets.
- Set slit gap and scan aperture across beam with single motor.
- Bi-directional repeatability is sub-micron in closed loop.
- Ground Tungsten slit blades.
- Parallelism of blades to  $<5\mu\text{m}$ .
- Slit gap range -0.1 to 2.0mm.
- Translation travel range 8mm.
- Photo diode array creating an integrated back scatter beam position monitor from blades.
- Capable of fast feedback to upstream HFM pitch angle for FZP modes.



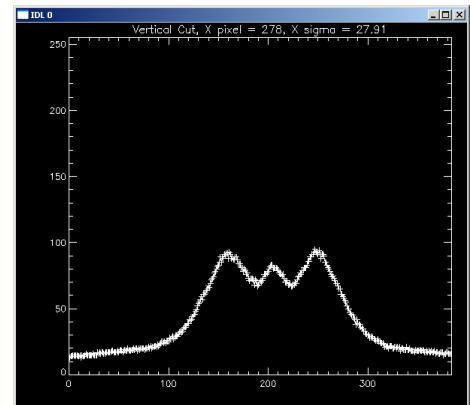
Above: Secondary Source Aperture installed on ID5 Micro-Spectroscopy beamline at the Australian Synchrotron.



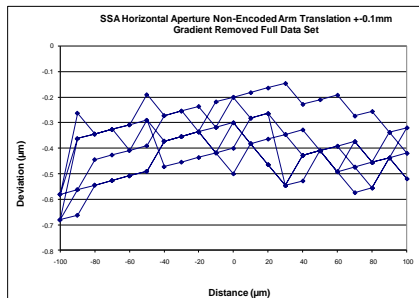
Right: Beam Defining Aperture installed on ID5.



Above: This is a diffraction pattern produced by an  $88\mu\text{m}$  vertical SSA slit, viewed at the sample position. This demonstrates the fantastic slit blade alignment. Image of beam using a YAG screen on table 5x objective. Camera resolution =  $3.75\mu\text{m}/\text{pixel}$ .



Left: Accuracy measurement for slit aperture mechanism demonstrating the fantastic performance over  $3 \pm 100\mu\text{m}$  cycles. Unidirectional accuracy of  $0.15\mu\text{m}$ .



Right: Demonstration of integrated photo diode beam position monitor linearity. The beam was scanned  $\pm 170\mu\text{m}$  across a  $100\mu\text{m}$  slit aperture. This response is clearly ideal for a closed loop feedback.

