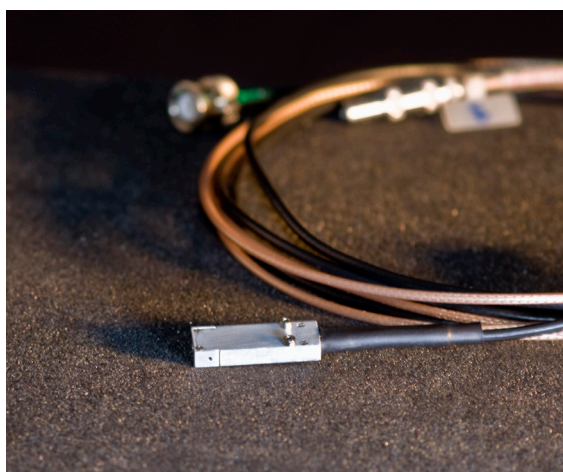


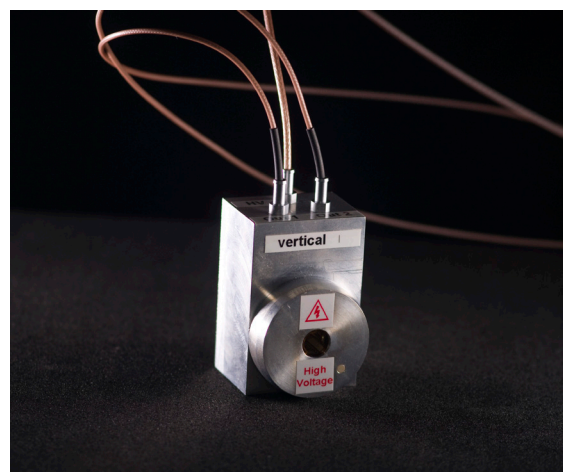
Ionisation chambers

ESRF has developed a family of miniature X-ray compatible ionisation chambers to measure the beam intensity I_0 close to the sample[1] or measure the position of the beam[2]. Generally they are windowless and work in air, but could be equipped with a Kapton window for sealed operation or used in continuous gas flow mode.

- ♦ Small size which allows to place it very close to the sample
- ♦ High sensitivity



Miniature ionisation chamber detector developed for X-ray microprobe intensity measurements.



Position sensitive quadrupole ionisation chamber

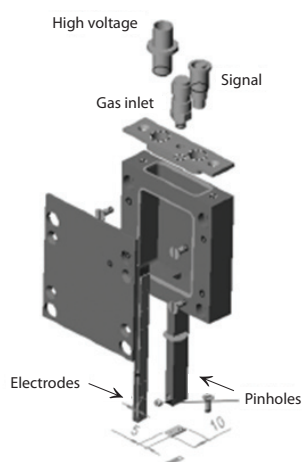
Publications

1] M. Kocsis and A. Somogyi: Miniature ionization chamber detector developed for X-ray microprobe measurements. *J. Synchrotron Rad.* (2003). 10, 187-190

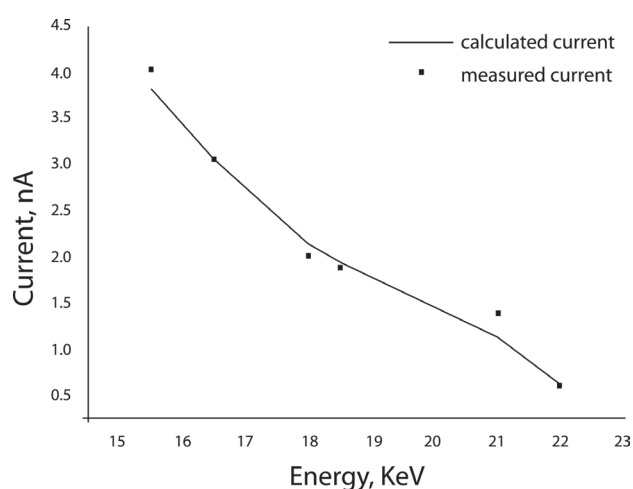
[2] M.Kocsis, P.Fajardo: High spatial resolution X-ray beam position monitor Nuclear Science Symposium Conference Record, 2005 IEEE

Miniature ionisation chamber

A complete characterisation of a miniature ion chamber with a constant Ar gas flow was performed on ID18 at ESRF and is presently used by many beamlines.



Technical drawing of the small ionization chamber detector. (dimensions in mm)



Measured and estimated current values of the small ionisation chamber at different energies

Characteristics

Energy range	Aperture	output	Error	Active path	Dimensions	Voltage
5 – 30 keV	50 μm	0.1 to 10nA	< 0.1 %	5 mm	5.5 x 11 x 30 mm ³	100 – 150 V

Position sensitive quadrupole ionisation chamber

The sensitive quadrupole ionisation chamber is currently used as a position monitor. Combined with a suitable feedback electronics, it is often used as a very precise zero position monitor.

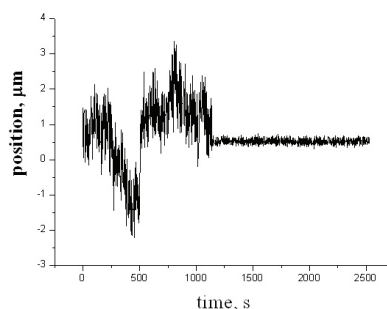
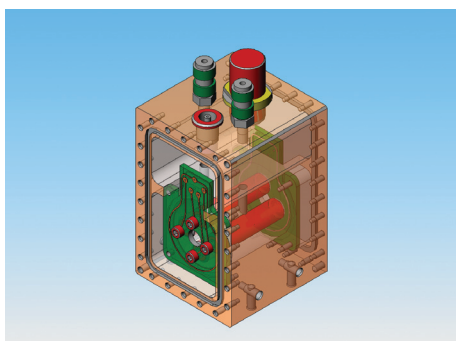


Figure 6. Stabilization of the X-ray beam

Characteristics

Energy range	Aperture	output	sensitivity	Voltage
Up to 90 keV	\varnothing 8mm	Pico to nano A	100 nm	2kV