

Beam Focusing at BL35

June, 2008

Bent Cylindrical Mirror (usual operating conditions)

Beam Size: ~100 μm x 90 μm FWHM (typical – without great care)
~50 μm x 70 μm VxH FWHM (optimized – tell us if needed)

Incident Divergence: ~0.15 mrad x 0.35 mrad VxH FWHM
(9 mdeg x 20 mdeg)

Incident Angle: about 3.7 mrad, upward

KB Mirrors (special setup, ~50% throughput, 1 Day Setup Time)

Beam Size: ~20 μm x 20 μm FWHM (typical) – approximately Lorentzian.

Incident Divergence: ~0.4 mrad x 2 mrad VxH Full Width

Incident Angle: about 1.3 mrad, downward

Note:

The KB setup severely limits the range of angular motion of the sample.

Omega will move only to positive values, the chi-range can also be reduced

The setup time is about 1 day. Include this in your requested proposal time.

The KB setup will reduce the flux at the sample by about a factor of 2.

Do note that the increased beam divergence can affect your momentum resolution.

Only vertical or only horizontal focusing is possible. The losses of the setup are primarily from the horizontal focusing.

A deflection mirror is available to vary the angle of the incident beam relative to horizontal.

A clean-up pinhole (either 40 μm or 90 μm diameter) can be used on the incident beam with this setup if the tails of the beam are a serious concern.