

## ID10 beamline parameters

<b>Source</b>	
In-air undulators	U35 + U27/U35 revolver + U27
Undulator parameters	Period: 27 mm (U27) / 35 mm (U35) Length: 1.61 m Minimum gap: 11 mm Magnet material: NdFeB $K_{\max}$ 1.36 (U27) / 2.34 (U35)
Source size (at 8 keV)	65 $\mu\text{m}$ x 15 $\mu\text{m}$ (HxV, FWHM)
Source divergence (at 8 keV)	19 $\mu\text{rad}$ x 16 $\mu\text{rad}$ (HxV, FWHM)
Brilliance for U27 (at 8 keV)	$10^{21}$ photons/s/0.1% BW/ $\text{mm}^2/\text{mrad}^2/100\text{mA}$
<b>Primary Optics</b>	
White beam double mirror	Harmonic rejection / pink beam mode Horizontal geometry Incidence angle: 2.6-3.5mrad (0.15°-0.2°) Fixed exit (offset: 3.2 mm) Three horizontal bands: Si / Pd / Pt 1 <sup>st</sup> mirror length: 382mm 2 <sup>nd</sup> mirror length: 500mm
Monochromator	Two vertical channel-cut crystal monochromators with polished surfaces (vertical beam offset: 9.5-10 mm) Liquid N <sub>2</sub> -cooled Symmetric Si (111) - $\Delta E/E = 1.4 \times 10^{-4}$ Symmetric Si (311) - $\Delta E/E = 2.7 \times 10^{-5}$
Energy range	Si (111): 6 - 25 keV      Si (311): 14 - 30 keV
<b>Focusing Optics</b>	
UHV white beam transfocator (Be-CRLs)	Distance from source: 36 m Lens curvature radius: 300 $\mu\text{m}$ , 200 $\mu\text{m}$
UHV monochromatic beam transfocator (Be-CRLs)	Distance from source: 42.4 m Lens curvature radius: 200 $\mu\text{m}$
UHV Vessel 1 (Be-CRLs)	Distance from source: 52.2 m Lens curvature radius: 100 $\mu\text{m}$ , 200 $\mu\text{m}$
UHV Vessel 2 (Be-CRLs)	Distance from source: 52.8 m Lens curvature radius: 200 $\mu\text{m}$
UHV Vessel 3 (Be-CRLs)	Distance from source: 56.3 m Lens curvature radius: 50 $\mu\text{m}$ , 200 $\mu\text{m}$
<b>Experimental stations</b>	
ID10-SURF	
6 + 2 diffractometer	Distance from source: 44.5 m
Focused beam size (at 8 keV)	35 $\mu\text{m}$ x 10 $\mu\text{m}$ (HxV, FWHM, UHV transfocator)
Flux (at 8 keV)	$2 \times 10^{13}$ photons/s/100mA
ID10-COH	
4-circle horizontal diffractometer	Distance from source: 61.0 m
Transv. coh. lengths (at 8.6 keV)	80 $\mu\text{m}$ (H), 400 $\mu\text{m}$ (V)
Focused beam size (at 8.6 keV)	6 $\mu\text{m}$ x 3 $\mu\text{m}$ (HxV, FWHM, UHV vessel 3)
Coherent flux (at 8.6 keV)	$10^{12}$ photons/s/100mA