



HELIOS EF for I μ S 3.0

- Superfocusing - for “best-ever” microfocus sealed tube intensity

The desire to investigate smaller, more weakly diffracting samples continuously pushes X-ray source and optics development to new heights. We therefore designed the new HELIOS EF optics for copper K α radiation to deliver a highly focused beam with maximum intensity. HELIOS EF optics were developed for the I μ S 3.0 microfocus X-ray source, the only microfocus X-ray source optimized for the needs of crystallography.

- The HELIOS EF optics and I μ S 3.0 combination features the highest flux density of any sealed tube microfocus source in a small highly focused beam.
- The HELIOS EF optics will deliver the best data for your small, most weakly diffracting samples from coordination and organic chemistry as well as smaller biological samples.

Sealed under helium

HELIOS EF optics are manufactured with the highest possible precision to deliver the greatest flux density and best monochromaticity. The Montel-type double bounce beam geometry guarantees the most homogenous beam. Mounted on an optical bench with outstanding stability, alignment of the HELIOS EF optics is fast, simple and reproducible. Like all our modern X-ray optics, the HELIOS EF mirrors are hermetically sealed under helium with a sensor permanently monitoring the pressure, making vacuum pumps for the optics housing obsolete. The HELIOS EF combines cutting-edge technology with ease-of-use, resulting in the highest performance and lowest maintenance of any optics before.

Snap-lock collimators

HELIOS EF optics are offered with a set of easily exchangeable pinhole snap-lock collimators. These highly precise pinhole collimators are ideal for fine-tuning the X-ray beam characteristics to the needs of each individual sample with excellent reproducibility. The round shape of the pinhole collimation minimizes the spot overlap and delivers a superior beam profile compared to rectangular slit setups.

Features and Benefits		
Optical principle	Montel-type optics, 90 degrees	Focusing optics designed for the needs of single crystal X-ray diffraction
Divergence	13.6 mrad	Optimized for small, weakly diffracting samples
Intensity	$> 7.5 \times 10^{10}$ ph s ⁻¹ mm ⁻² (Cu-K α)	Most intense X-ray beam from any sealed microfocus X-ray source
Beam size at the focus position	~ 0.100 mm (FWHM), round	Beam size optimized to the size of today's most challenging samples
Collimation for D8 QUEST and D8 VENTURE (optional)	Two Pinhole Collimators 0.2 / 6mrad, 0.3 / 10mrad, 0.3 / 17mrad, 0.6 / 21mrad	Snap-lock collimators for fast reproducible beam adjustment leading to round spots with minimized overlap
Protection of the optics	Helium, permanently sealed housing, 1.4 bar, pressure sensor control	Long term stability without adding cost from pressurized gas bottles or spare parts for vacuum pumps
Length of the optics	15 cm	Long optics for maximum beam intensity
Spectral purity for K α	> 99.9 %	Best spectral purity for clear diffraction pattern

Bruker AXS is continually improving its products and reserves the right to change specifications without notice. Order No. DOC-S86-EXS062 V4 © 2019 Bruker AXS.

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