

The μ S 3.0

Bright. Brighter. Unique.



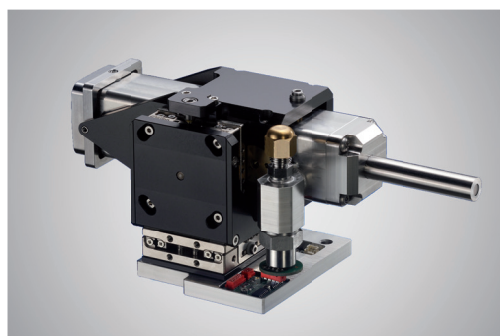
μ S 3.0 - New tubes. New optics. New beampath.



New tube for
crystallography



Quick-lock concept for easy
alignment and serviceability



Helium filled and sealed optics housing for
Montel mirror

Best Performance Improved Brilliance & Convenience

- with Incoatec's X-ray Tube *IXT* - the first microfocus sealed tube optimized for crystallography
- improved X-ray optical design
- 30% - 40% more intensity than μ S^{High Brilliance}, approximately 70% more intensity than other microfocus sources
- available for Cu, Mo and Ag radiation
- „Quick-lock”: new beampath concept for easy alignment and serviceability
- optics and source are separately mounted on an optical bench with high precision
- optics is swappable - tube change is dead easy - system is less prone to misalignment

μ S - The Story Continues

Since its launch in 2006, the Incoatec Microfocus Source μ S has been regarded as the superior X-ray source for single crystal diffractometry in the home-lab. More than 700 sources sold within less than 10 years are proof for outstanding performance and reliability with best value for money. With the launch of the μ S^{High Brilliance} in 2011, the photon intensity was increased by at least 30 %.

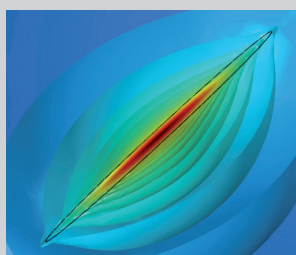
Now the story continues: Incoatec is proud to announce the 3rd generation of the μ S - the μ S 3.0 - with a further increase in intensity of 30% and more, and available for Cu, Mo and Ag radiation! The benchmark has been set even higher by designing a new tube, the Incoatec X-ray Tube IXT. This tube gives Incoatec the exclusive opportunity to offer the μ S with specifications which are not achievable with other microfocus sealed tubes on the market.



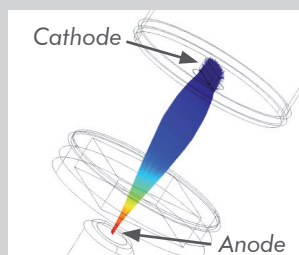
Bruker AXS D8 VENTURE 2nd generation with two μ S 3.0: ultimate performance for chemical crystallography

IXT - The Tube Story

For some time Incoatec has been designing its own tubes. By changing cathode and anode parameters as well as geometries and take-off angles, an optimization of tubes for crystallographic applications could be achieved. The figures show simulations of critical tube parts: the anode, the cathode and the electron beam.



COMSOL simulation of the thermal load on the anode.



Ray-tracing of the electron beam, which has to be focused to the anode.

Moreover, μ S 3.0 is not only a tube story. The mechanics, electronics and beam path have also been optimized. For example:

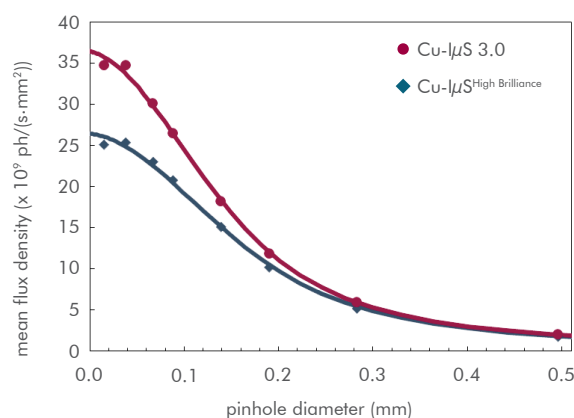
- The whole tolerance chain has been reduced making adjustment easier.
- The mechanical separation of tube and optics enables easy alignment.
- The new Quick-lock concept: tube and optics changes can be carried out without realigning the whole instrument.
- A vacuum pump is no longer needed because of the new Helium filled and sealed optics housing.

Of course, the μ S 3.0 is also covered by a 3 year warranty and the established high-quality customer support from Incoatec.

The μ S 3.0 is first available in the second generation of Bruker AXS solutions for crystallography, the D8 VENTURE and D8 QUEST, both in single and dual source configurations.

μ S 3.0	Cu	Mo	Ag
Divergence (mrad)	7.5	5	5
Focal size (μ m)	100	110	100
Flux (10^8 ph/s)	3.90	0.50	0.15
Flux density (10^9 ph/(s*mm ²))	29.0	3.1	1.4

Specifications of the μ S 3.0 models for D8 VENTURE and D8 QUEST



Comparison of the mean flux density vs. pinhole diameters of the μ S 3.0 and the μ S^{High Brilliance}, measured with a calibrated pin diode