

There is a new diffractometer in town,  
and its name is **HiDIFF-X**



Results of a qualification campaign,  
March 2026.

## Key takeaways

**HiDIFF-X is a sample handling system designed for advanced diffraction beamlines at Synchrotron and FEL facilities:**

Improved data quality

Faster overall beamline throughput

Sturdiness throughout the experiment

Easy access to advanced experimental procedures

High degree of adaptability to specific requirements

**HiDIFF-X**  
IRELEC



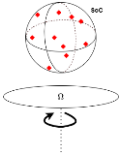


# Vertical $\Omega$ rotation-axis

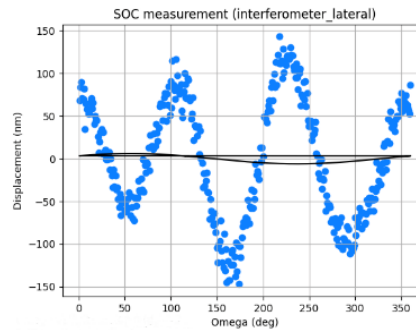
The steady hand of innovation

## Sphere Of Confusion

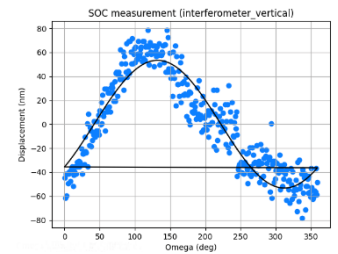
$$R_{SOC}^* = 176 \text{ nm @ } 100^\circ/\text{s}$$



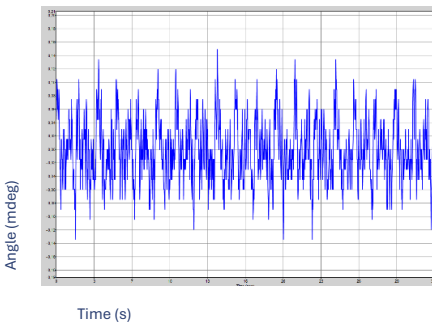
Radial roundness @ 100°/s  
± 144 nm



Axial roundness @ 100°/s  
± 67 nm



**Dynamic accuracy**  
0.15 mdeg @ 10°/s



\* Measurements performed with high resolution independent metrology tools (fiber interferometers) and repeated 10 times (standard deviation < 7%)

Quicker on the draw with its  
**Quick tool changer**

No screwdriver required, no more broken wires.  
Easy and safe change of the goniometer head



**A software integration  
built for the long haul:**  
seamless, robust and adaptable



## High-level functions embedded into the software and adapted to user-specific requirements:

- Automatic loop centering
- 3-clicks centering
- Collimator / aperture automatic alignment:  
< 3  $\mu\text{m}$  repeatability
- Automatic beam location: 0.5  $\mu\text{m}$  repeatability
- Quick and easy setup for:
  - 1D & 2D raster scans
  - Helical scans

## Phase switching

Less than **18 s** between sample loaded and sample ready for a scan (loop centred and its maximised surface area perpendicular to the beam axis)

**Made to ride  
your way**



Adaptable design for any end-station setups  
Including the ones with reduced vertical distance  
**Tailor-made down to 380 mm**

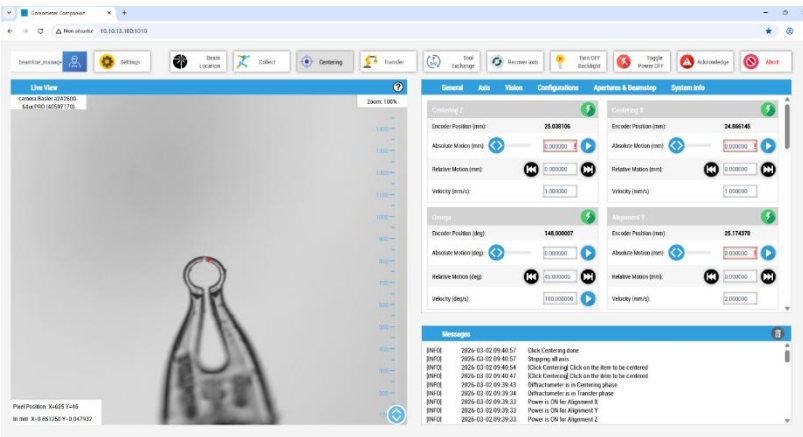
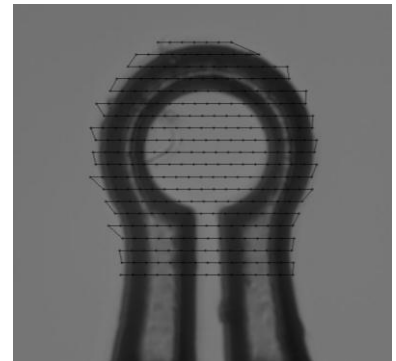


## On-axis camera

The sharp gaze of innovation

Double-branch with continuous zoom  
 Field of view: 2.7x2.2mm<sup>2</sup> or 0.19x0.16mm<sup>2</sup>  
 Resolution @max. zoom:  
**72 nm/pixel**

**Automatic loop  
 recognition &  
 centering**

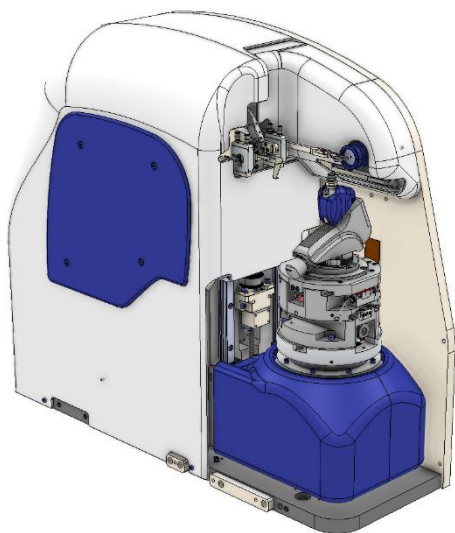


**Never get stranded  
 in the desert**

All motions are fitted with  
**absolute encoders** with a  
 resolution of **1 nm**

# HiDIFF-X

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**New diffractometers are saddling up, heading to:**

- SINCRYS end-station at MAX IV
- XALOC beamline at ALBA

**They will include kappa/phi heads and plate holders to perform the most challenging data-collection**

