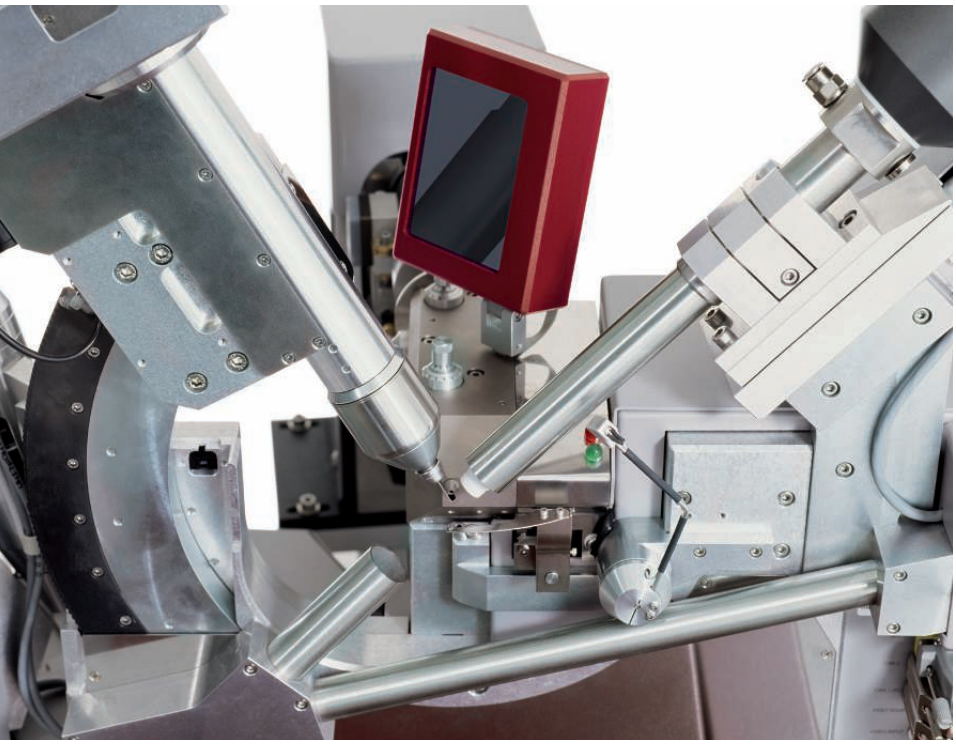
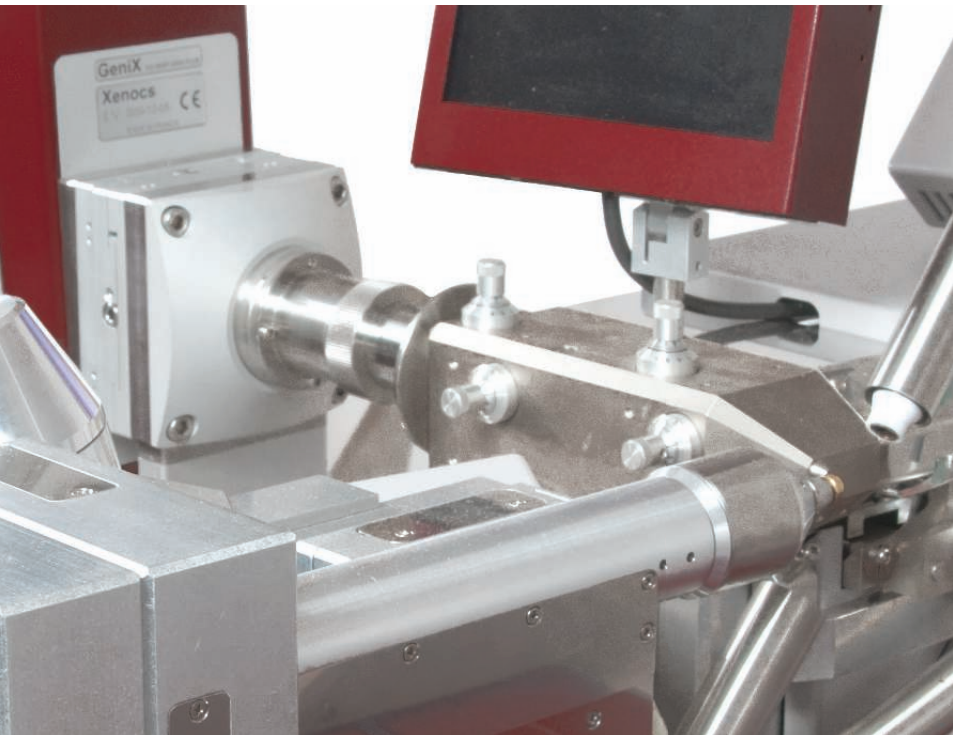
marμX

Complete turn-key system for X-ray crystallography

marμX Complete Turn-Key System for X-ray Crystallography

marμX is a complete turn-key system for X-ray crystallography of single crystals. **marμX** consists of a micro-beam X-ray generator operating at 30 Watts, producing a 20 µm microfocus spot. It is equipped with a modern multi-layer optic producing
a spot size at the sample of appr. 170 µm x 170 µm. Further, it features the well-known **mar345dtb** image-plate based
detector system and an Oxford Cryostream low temperature unit. The full system is integrated in a functional and stable table with plenty of space for all electronics and attachments.
marμX is modular built and can easily be expanded to include the **mardtb/easymount** ™ or the **marc-sc** sample changer. Optionally, a table top radia-tion enclosure is available.





Remarkable Performance

It has been shown that the **marμX** system can produce data comparable to traditional high-power rotating anode systems. In a test using lysozyme crystals it was possible to collect data of good enough quality for sulfur-SAD-phasing[1] using only 90° of data.

A direct comparison between the **marμX**-system and a rotating anode generator using the same experimental conditions (same crystals, exposure times, detector, etc.) revealed that small crystals produce superior data with the **marμX** system while the results for larger crystals are virtually identical[2].

1) Application Note AN260107 available for download at www.marxperts.com
2) Application Note AN070207 available for download at www.marxperts.com

Low Running Costs

Since the utilized power of the X-ray source is very low (30W) there is no need for external cooling water. The necessary cooling of the anode is accomplished through a built-in air/ water cooling unit.

Electrical power requirements are also extremely low. The complete system can be run from a standard single-phase 220/110 V wall socket with a 16A fuse.
No need for costly water and electrical installations in the X-ray lab.

Both the source and the detector are Ethernet controlled. This ensures flexibility in the placement of the computer. Only one
single Ethernet cable between the PC and the
marµX is necessary.

SPECIFICATIONS

X-ray source:	GeniX micro-beam 50 kV / 0.60 mA
Optics:	Xenocs 3D CU HF multi-layer optic
Beam size at sample	170 µm x 170 µm
Beam divergence	< 6 mrad
Anode cooling	built-in water/air refrigerated chiller
Mirror protection	diaphragm vacuum pump with interlock to shutter
Detector:	**mar345** image plate detector
Cycle times	36 to 108 seconds (depending on diameter and pixel-size)
Dynamic range	1 : 128000
Sensitivity	1.5 X-ray photons equivalents
Goniometer:	**mardtb** 2-axis multi-purpose goniometer with automatic X-ray beam alignment and continuous monitoring of the primary beam intensity
Options for **mardtb** :	built-in motorized goniometer head, **easymount** ™ or **marcsc** (cryogenic sample changer)
Cryo-cooler:	Oxford Cryostream 700 liquid nitrogen system with weight based auto-refill system or Oxford Cobra system with liquid nitrogen generator
Experimental table:	1700 mm x 1000 mm x 800 (w:d:h) stainless steel magntic table top and aluminum table frame
Options:	Radiation enclosure with sliding doors and shutter interlock system

marXperts GmbH

Werkstr. 3
D-22844 Norderstedt
Germany

Tel: +49 (40) 529 884-0
Fax: +49 (40) 529 884-20

info@marxperts.com
www.marxperts.com