

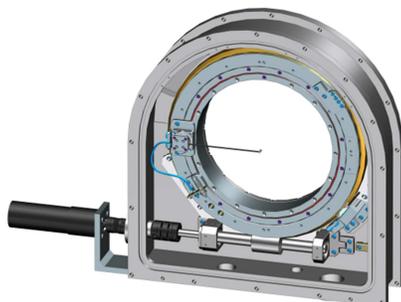
TECHNOLOGICAL OFFER - CELLS

TWO ROTATION MECHANISM FOR A BEAM STOP IN VACUUM

A team of ALBA Synchrotron engineers have developed a new motorized beamstop for synchrotron beamlines that provides better data acquisition.

The ALBA synchrotron managed by the Consortium for the Construction, Equipping and Exploitation of the Synchrotron Light Source (CELLS) is aiming at contributing to improve the industry competitiveness by offering the technological solutions developed in-house. In this case the ALBA Synchrotron engineers have developed a new beamstop compatible with vacuum that solves a market demand in the field of synchrotrons. In particular, at Small Angle X-ray Scattering beamlines (SAXS), beamstops are needed to block the intense primary beam that has not been scattered by the sample in order to protect the detector from any damage. In these beamlines, Beamstops are usually confined inside a vacuum tube minimizing air space between the sample and the detector. For certain experiments, a motorized beamstop is required to achieve a precise positioning in different regions of the detector active area. ALBA has developed a new motorized beamstop consisting of a two-rotation mechanism inside vacuum that composes a movement able to cover all range of the active area of the detector. The presented solution involves a main rotation reached by a gear and a worm drive actuated by a stepper motor and a second rotation relative to the main one produced by a piezo rotation stage. For each position appear two different solutions. This characteristic allows taking two equivalent images in the detector with the same beamstop position but different orientation in the beamstop support; thus permitting the compensation of the support shadow on the active area of the detector.

At present, the available beamstops in the market do not solve this need. The new beamstop developed at ALBA not only improve the current performances but also presents a new solution to avoid shadows on the detector and providing an improved quality data acquisition.



Beamstop 3D model

CELLS (ALBA Synchrotron) is the owner of the present invention and is offering it to the technological industries for its commercialization. Those companies interested, please, do not hesitate to contact the ALBA Industrial Liaison Office in the below email:

Patent Status	Spanish patent
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