WEPPP012

Multiple Detector Stage (MDS)
at the Eu.XFEL MID Instrument

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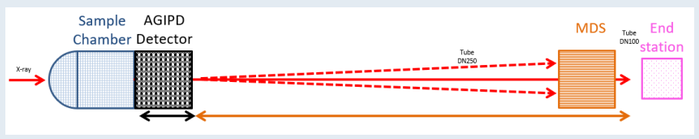
Abstract / Introduction

The Multiple Detector Stage (MDS) is an ancillary detector setup for the MID instrument at the European XFEL GmbH. It is developed in order to improve the current performance capabilities and make entirely new experiments possible. A unique feature of the MID instrument is the large flexibility of positioning the AGIPD detector relative to the sample position. With this, a large variety of configurations from ultra-small to wide-angle scattering range can be covered. A reoccurring request from the user community during the first proposal calls was the option to cover simultaneously both, the wide and the small angle scattering regions by using two area detectors, one close to the sample and a second one further away. With the MDS in place, it will be possible to perform SAXS experiments in parallel to WAXS measurements of the AGIPD detector. The MDS will not be installed at the beamline permanently. It can be installed on request. It is supposed to cover flexible positions and configurations. With this poster, I will present the status of the MDS project.

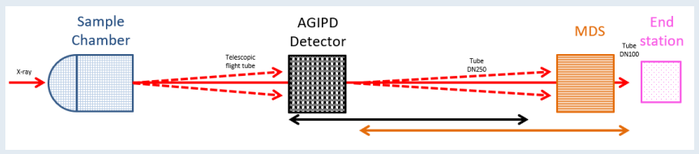
Aim of Configurations

MDS on arm of AGIPD

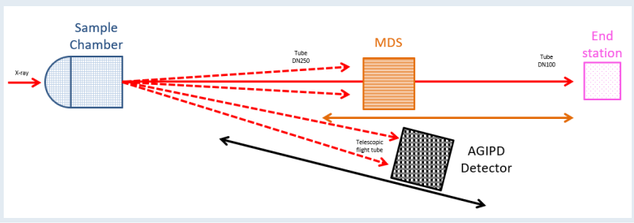
- ❑ Bragg reflections LfoV w. AGIPD + Speckles in SAXS w. MDS



- ❑ Increase resolution in SAXS

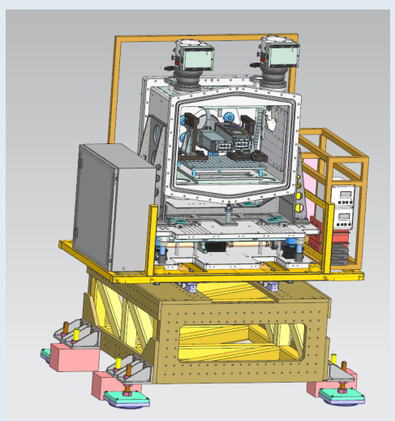


- ❑ MDS on individual girder to combine AGIPD in WAXS and MDS in SAXS

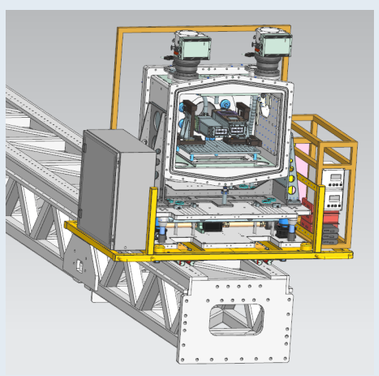


Support

Free positioning:
MDS sits on own girder with air pads



In line with AGIPD:
MDS sits on arm of the MID
MID XSIS

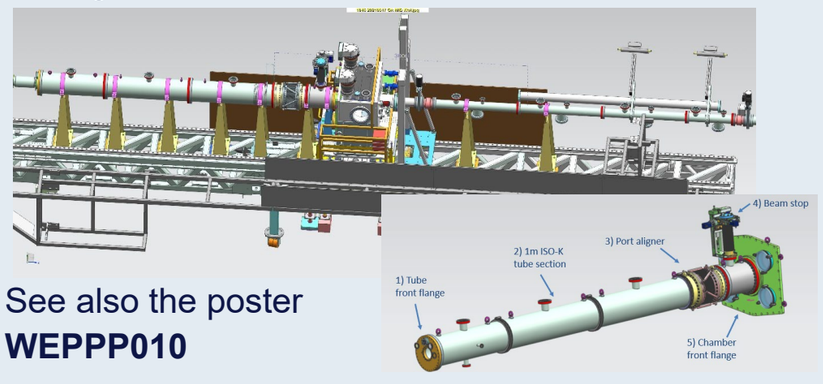


See also the poster **WEPPP010**

MDS Environment

MDS integration into MID beamline

- ❑ Chamber front flange
- ❑ Beam Stop with port aligner
- ❑ Flight tube



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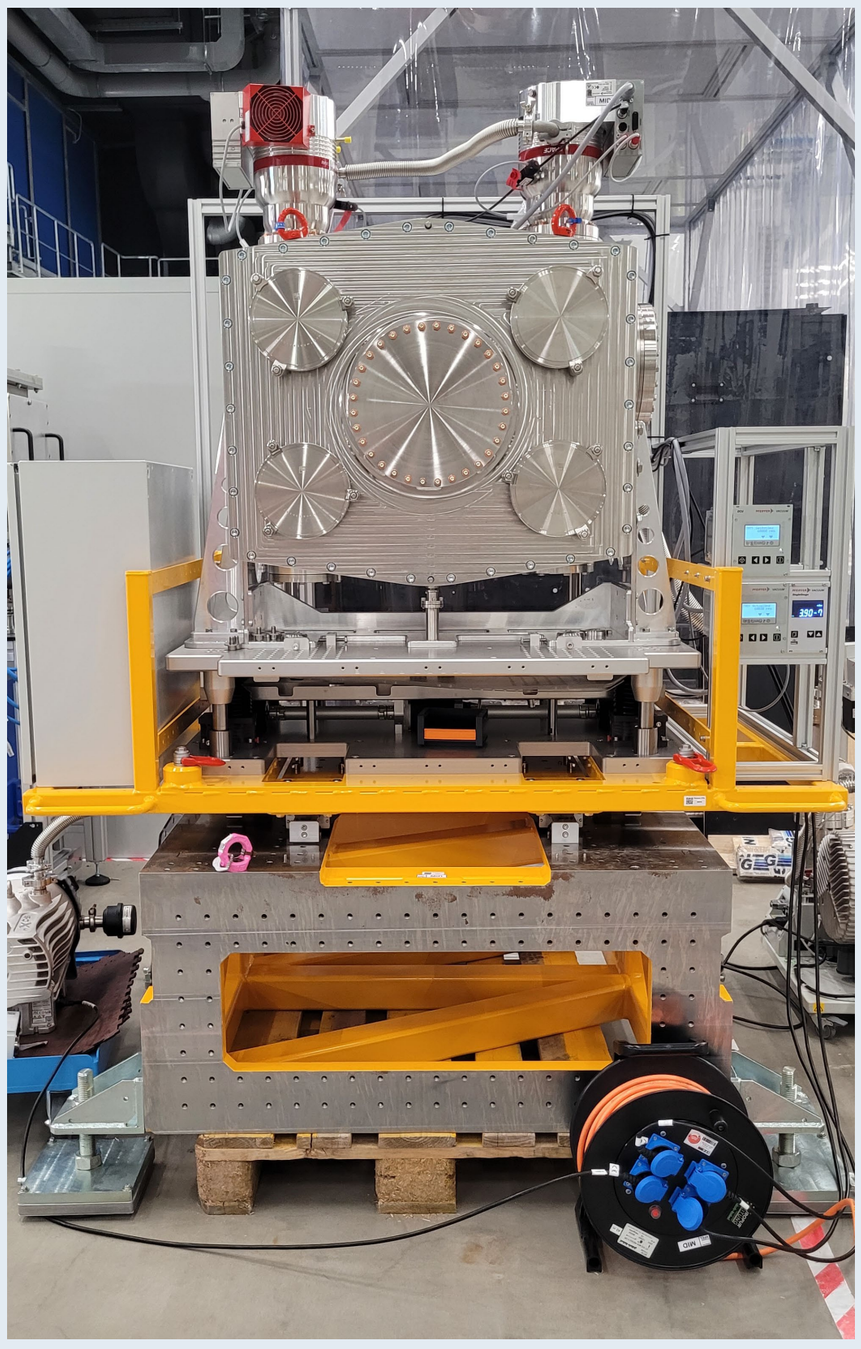
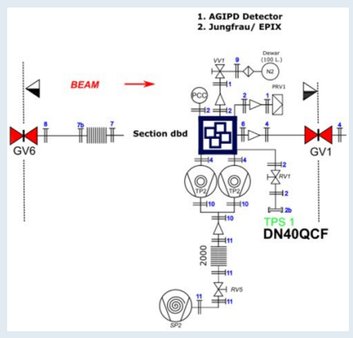


Vacuum

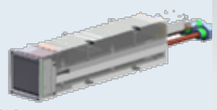
- ❑ 2x HiPace 300M
- ❑ Scroll nXDS20i
- ❑ Pressure Gauge PKR361
- ❑ Venting unit
- ❑ Pressure relief valve

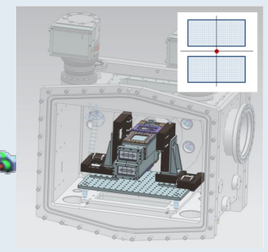


Detectors / Orientation

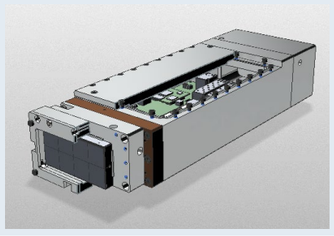
Two detectors can be individually positioned

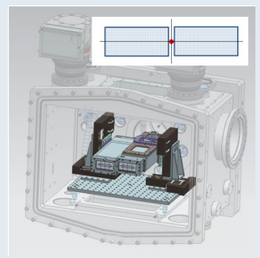
- ❑ 2x2 OWIS LTM80P
- ❑ 2x ePix (SLAC)
- ❑ 2x Jungfrau (PSI)
- ❑ 1x Zyla





Air housing of the Jungfrau detector



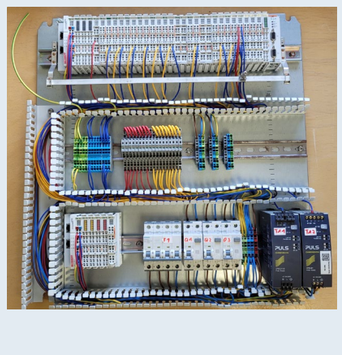


High Vacuum Chamber

Feedthrough for detectors and motors and view ports

Electronics

Camera and Detector electronics
IT patch panel, …
Local crate hosts:
Power supply, Beckhoff PLC for motors, …



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