System Integration
MVD Prototype

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System Integration - MVD Prototype

Demonstrator (MIMOSA-20)

Prototype (MIMOSA-26)

Final MVD (MimoSIS)

How could the MVD Prototype look like?

Which questions are needed to be answered to put the MVD into the CBM Magnet??

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MVD Prototype based on MIMOSA-26 sensors

The first station of the MVD Prototype will look like:

- Sensors are tested and in stock
- FPC and read-out electronics is work in progress
- Cooling structures are also available
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Possible sensor layout for MimoSIS:

Dimensions:
- 6 mm in width (3 mm active surface)
- 23 mm in length (20 mm active surface (blue))

First MVD station:
- overall 40 sensors, 10 per ladder, 5 per side

Cooling support for the sensors
CVD
Acceptance of the First Station

ladder

Backside:

71 mm
Possible sensor layout for MimoSIS:

Dimensions:
- 6 mm in width (3 mm active surface)
- 43 mm in length (40 mm active surface (blue))

Feasibility under consideration

**Second MVD station:**
- Overall 76 sensors, 19 per ladder, 9 (+1) per side

Backside:
- 111 mm
First ansatz for a schematic design of the **first** MVD station, including cooling and support structures:

- Cooling tubes (FEE)
- Read-out cables
- FPC
- FEE
- Sensors
- Cooling support
- Support frame

Dimensions:
- 351 mm (vertical)
- 340 mm (horizontal)
First ansatz for a schematic design of

the **second** MVD station, including cooling and support structures:
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Vacuum vessel including

the **first** (left) and

the **second** (right) station,

also visible support structures to hold the stations and allow them to slide in x-direction (black frame)
Vacuum vessel including both

the first (front) and the second (back) station,

also visible “doors” to open the vessel and replace the stations,
feed-throughs for the read-out cables and the cooling pipes
Complete MVD inside the magnet, including Target, support structures for the vessel and endcaps to close the vessel.
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Front view (downstream)

Vessel for the MVD:
Keep-in-Volume
604 x 1030 x 200 mm³
including Vessel and cables, cooling tubes out side of the vacuum

Vessel, included in simulation
To be discussed:

• Service positions
  – Service positions for the MVD stations needed to shield the sensors against unfocused beam (focusing, conditioning)

• Access to the detectors
  – Access to the detector for fast debugging repair, service
  – Access for mounting, service

• Keep-in-Volume
  – Actual design asks for a Keep-in-Volume of 604 x 1030 x 200 mm³

• Definition of the vacuum vessel
  – Positions and numbers of feed-throughs for the low voltage, cooling, read-out cables