Designing of the GEM detectors

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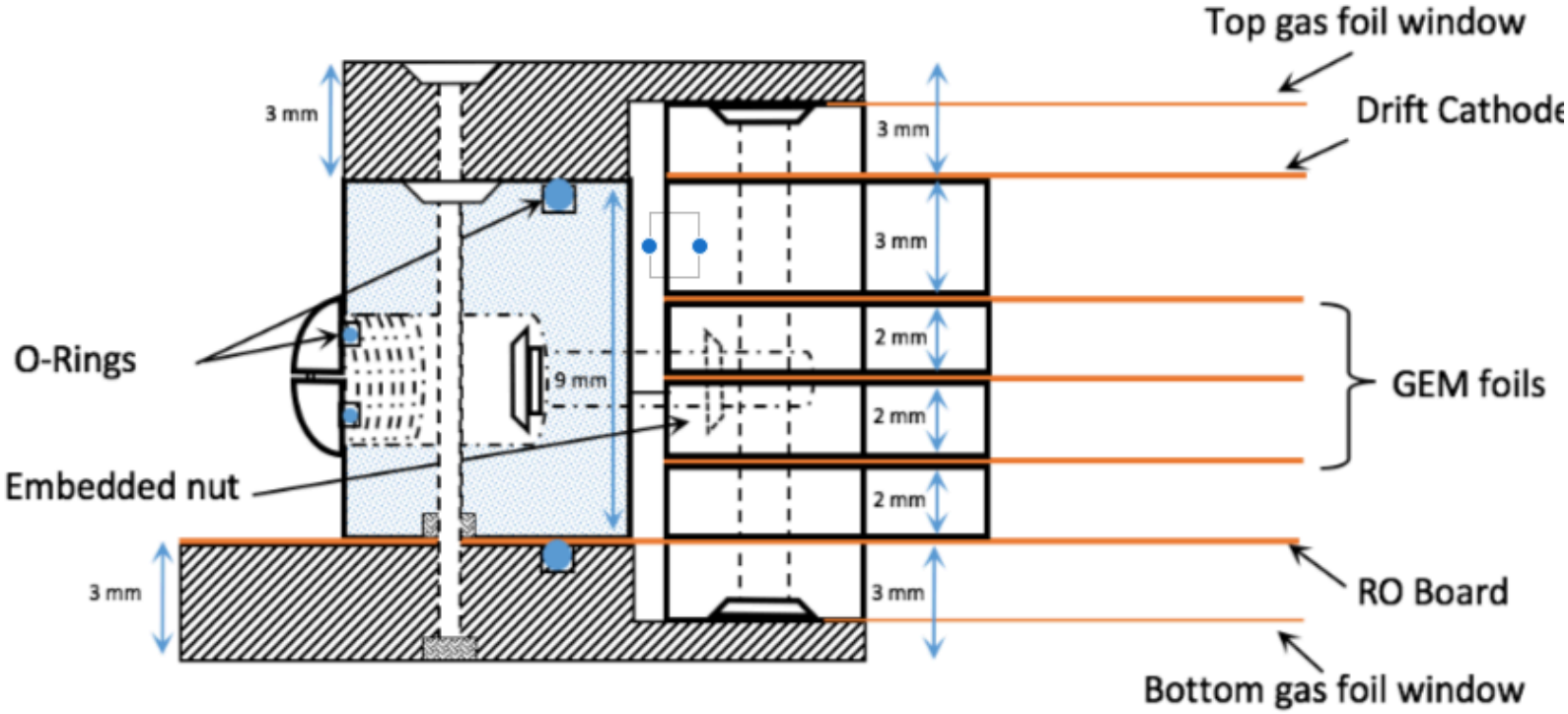
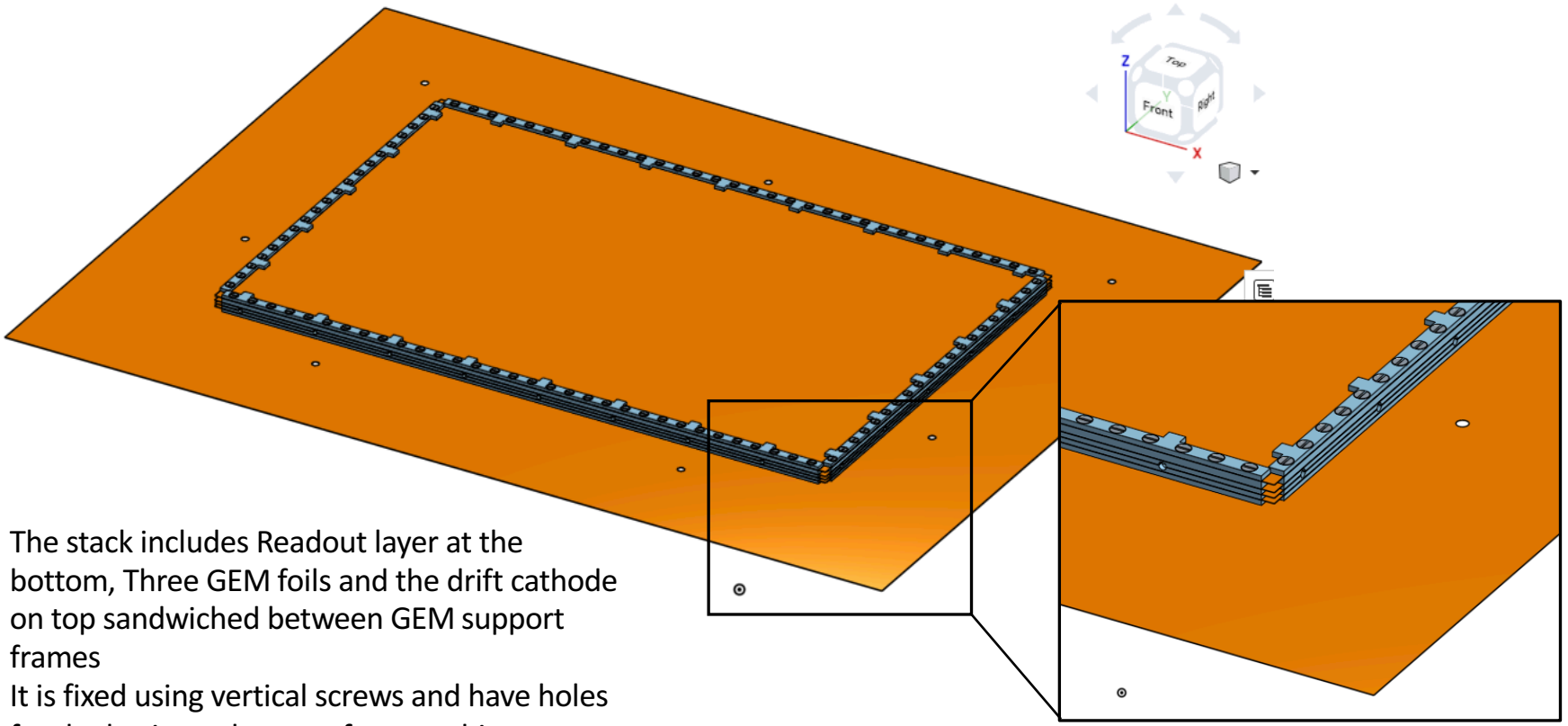
GEM detector Specifications

- Size = 25 cm * 40 cm
- Has three GEM layers
- One readout layer and one drift cathode
- The distances are 3:2:2:2 (mm) from Drift to readout
- HV connections and Gas connection are yet to be discussed and finalized.

GEM Detectors cross-section

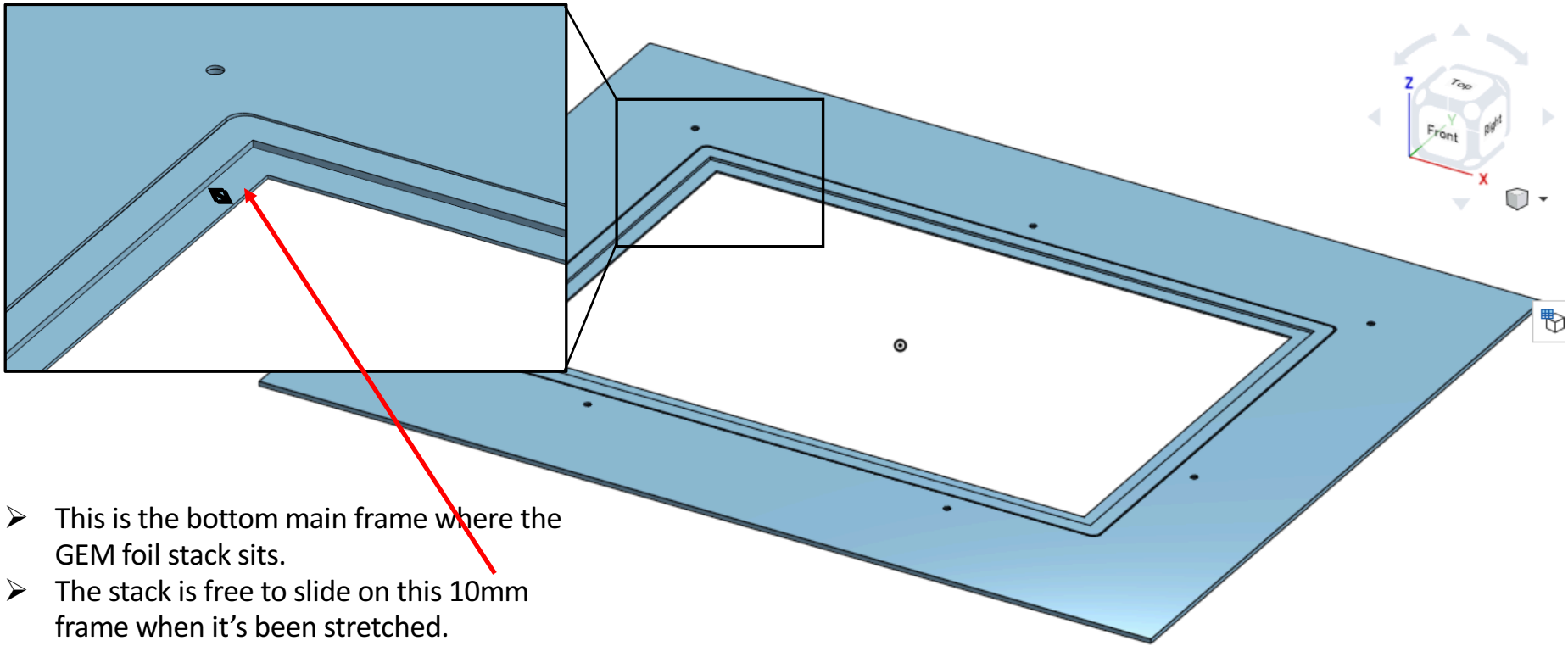


3D geometry of the GEM foil stack



- The stack includes Readout layer at the bottom, Three GEM foils and the drift cathode on top sandwiched between GEM support frames
- It is fixed using vertical screws and have holes for the horizontal screws for stretching

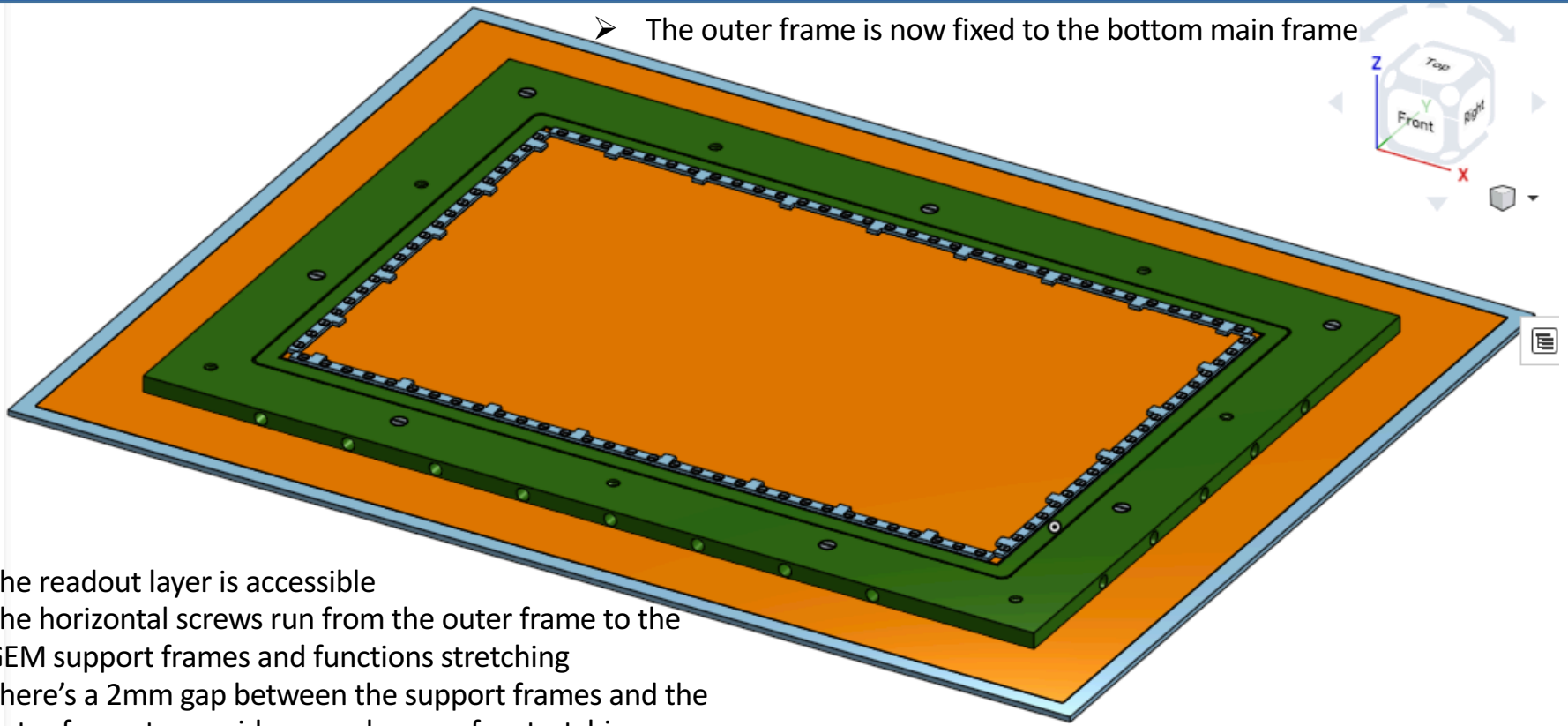
Bottom main frame



- This is the bottom main frame where the GEM foil stack sits.
- The stack is free to slide on this 10mm frame when it's been stretched.

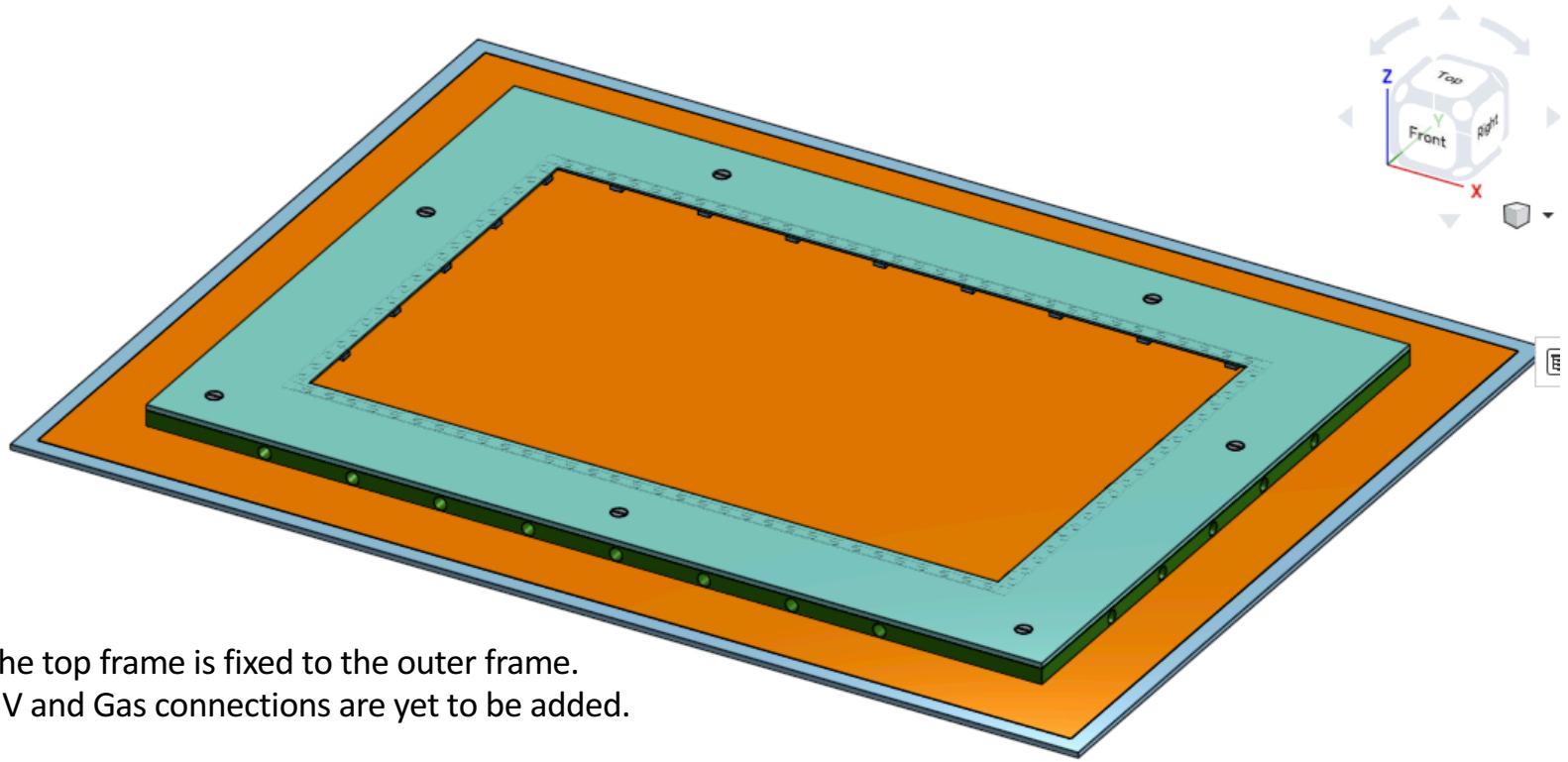
The outer frame

- The outer frame is now fixed to the bottom main frame



- The readout layer is accessible
- The horizontal screws run from the outer frame to the GEM support frames and functions stretching
- There's a 2mm gap between the support frames and the outer frame to provide enough space for stretching.

GEM chamber



- The top frame is fixed to the outer frame.
- HV and Gas connections are yet to be added.