



End-Cap Opening Scenarios

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10.02.2009



End-cap Opening

In contrast to other collider detectors two modes of operation:

- data-taking in beam position and
- maintenance/commissioning in garage position

In beam position

- Access should be very fast. End-cap opening ≤ 1 h
- Access to essential detector components, i.e. TPC and CAL, not muon chambers

Garage position

- Time not as critical as in beam position.
- Fast access to TPC and CAL similar to opening in beam position.
- Not as fast access to other components acceptable.



End-cap Opening

What are the obstacles for opening end-cap?

- QD0 support?
 - Pillar or support from tunnel?
- QD0 cryo system?
- Valve between QD0 and QF1?
- QF1?
- Shielding
 - PACman or arch-like concrete shielding (K.Sinram)?

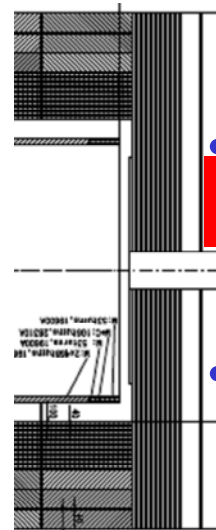
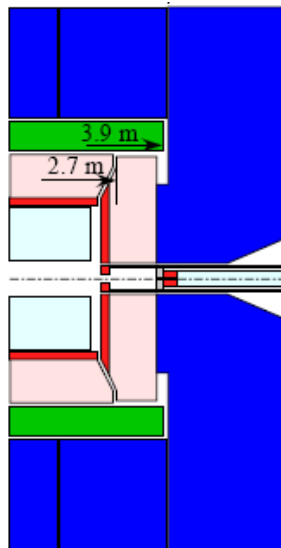
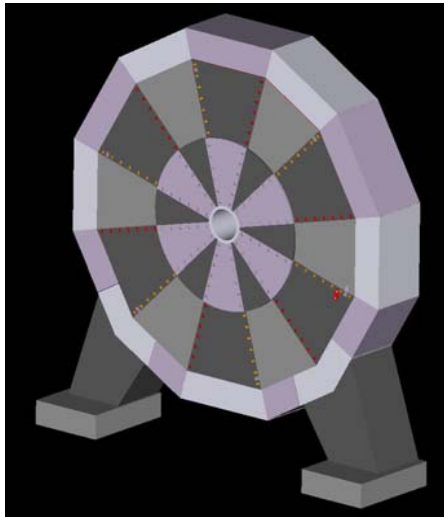
Depending on obstacles, do we gain space in z-direction with a modified hole in the last end-cap iron plate?

- Frustum-like shape (GLD, Y.Sugimoto)?
- Central part of last plate to be opened with hinges?

Need answers, before decision whether or not end-cap is split.

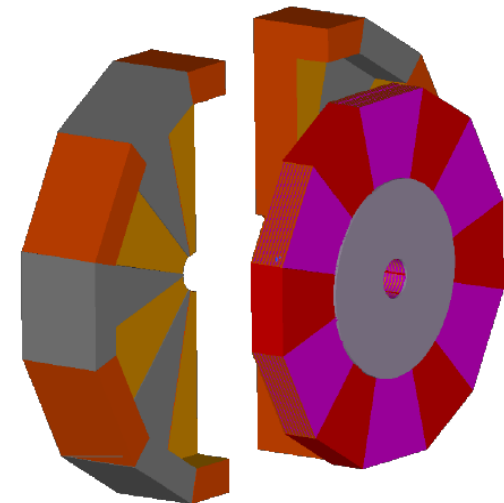
End-cap Opening Options

One end-cap



Central iron piece opened

Split end-cap





End-cap Opening

	one end-cap	split end-cap 3pieces
movement	in z direction	in x and z directions
cables trays	allow for z movement	allow for x and z movement
time for opening	fast	about twice as long
access	limited (TPC, CAL)	better access: more space between B/EC, access to muon ch.
mechanics	more stable	stable
alignment	just one piece	three pieces to be positioned conflict with Monalisa platforms?
surface to exp.hall	heavy ~ 3200t	~1500 and 1700t