PANDA Barrel DIRC Cable Cross Section

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PANDA Mechanics Workshop Apr. 2015

Barrel DIRC Cable Cross Section

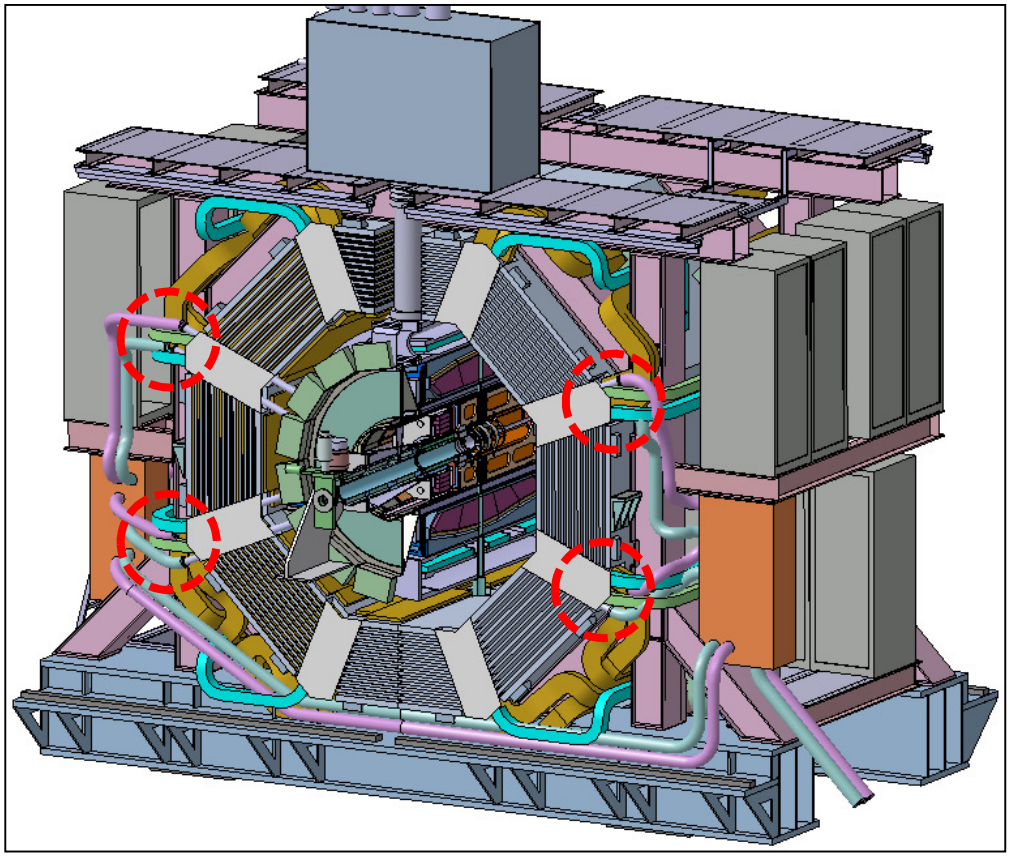
Barrel DIRC	Connection	Number of Cables/Lines	Single Cross Section [mm²] (including insulation)	Total [mm²]	From	To
HV	240 MCPs	240 coaxial cables	15	3600	readout volume	Service Area E10
LV	60 TRBs	120 cables	7	840	readout volume	Service Area E10
Readout	TRB hub	16 ethernet	30	480	readout volume	Service Area E10
Gases	16 bar boxes	32 lines	29	928	bar box support	Gas Supply
Readout Cooling	readout electronics	2 pipes	1000 *	2000	readout volume	Service Area E10
Oil **	expansion volume	2 pipes	750	1500	expansion volume	Oil Supply

* preliminary estimate; has to be verified

** in case of replacing oil by solid fused silica the oil supply pipe lines would be eliminated.

$\Sigma = 9348\ mm^2$
plus appropriate space for cable routing

Barrel DIRC Cable Cross Section



J. Lühning (Collaboration Meeting March 2015)

- Muon
- GEM
- DIRC
- EMC
- EMC det.
- EMC det.

PANDA v1502:
4X Barrel DIRC cable tray

each tray:
$130mm * 78mm = 10140mm^2$

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Summary:

- The Barrel DIRC **cable tray size** from **PANDA v1502 is realistic**.
- The valid **cable bending radius** has to be verified.
- Cable tray layout to **prevent overheating**.
- Selection of cables in compliance with **PANDA cable-rules** (fire safety, radiation resistance).
- In case of using oil we need **one additional tray** below the level of the expansion volume.