



Barrel DIRC Cable Routing

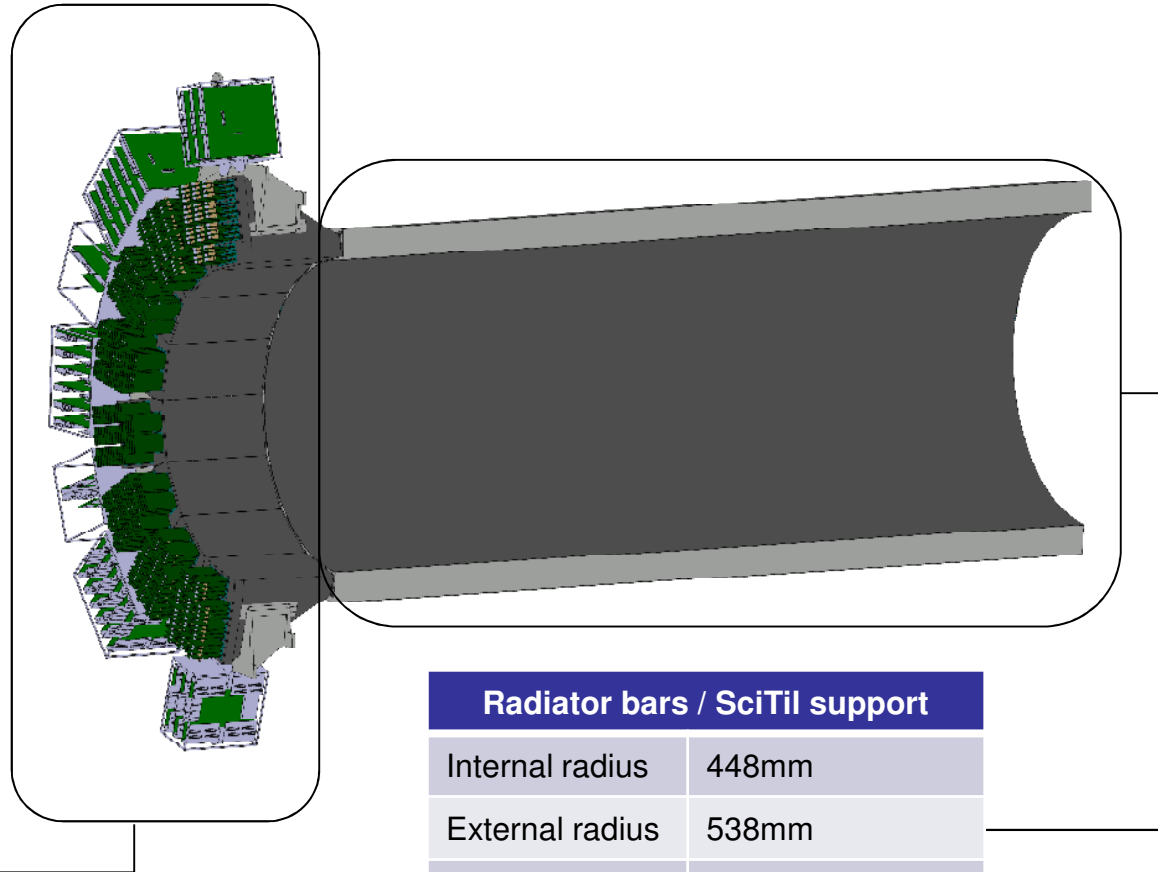
Andreas Gerhardt
PANDA Collaboration Meeting 17/1

Outlines

- Barrel DIRC cable routing
(balcony west rack; service area E10)
- Selection of cables (DIN VDE 0298-4)

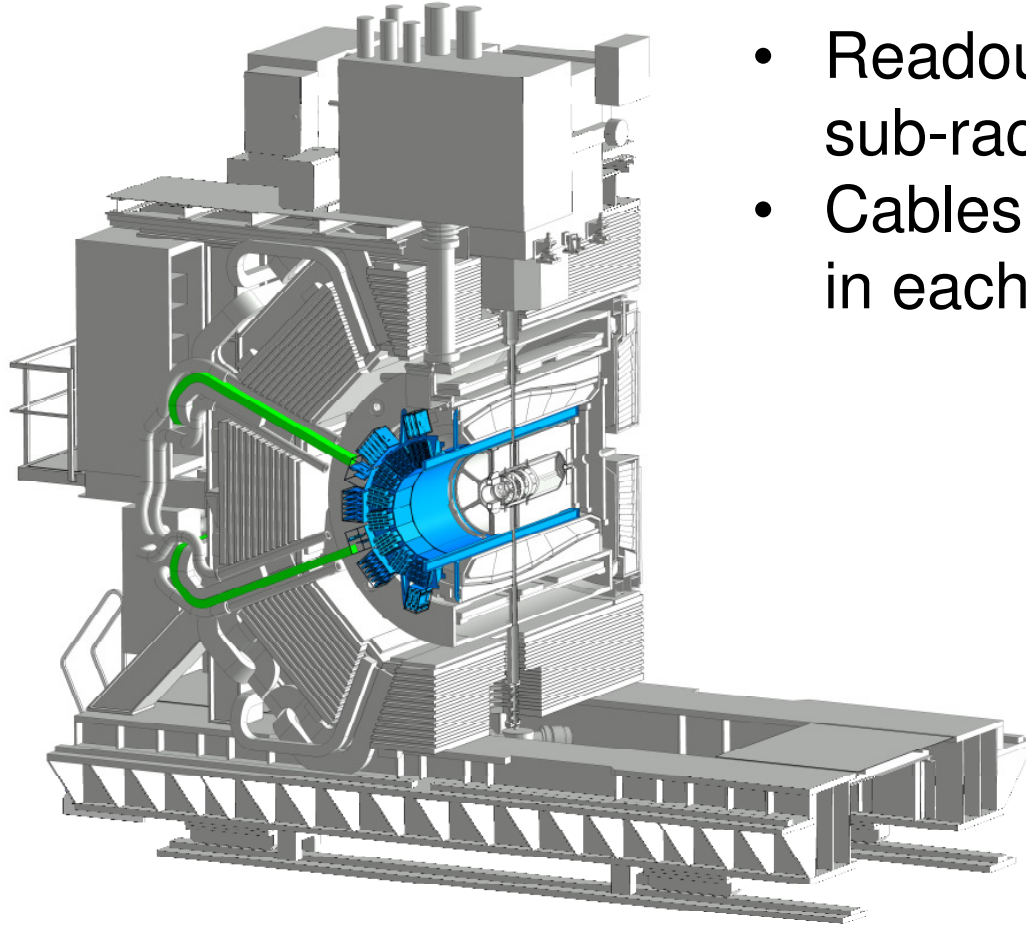
Main parts of the Barrel DIRC

Expansion volume / Readout	
Internal radius	448mm
External radius	1080mm
Total weight	≈ 500kg
z-position	-1710... -1190mm
Δz	520mm

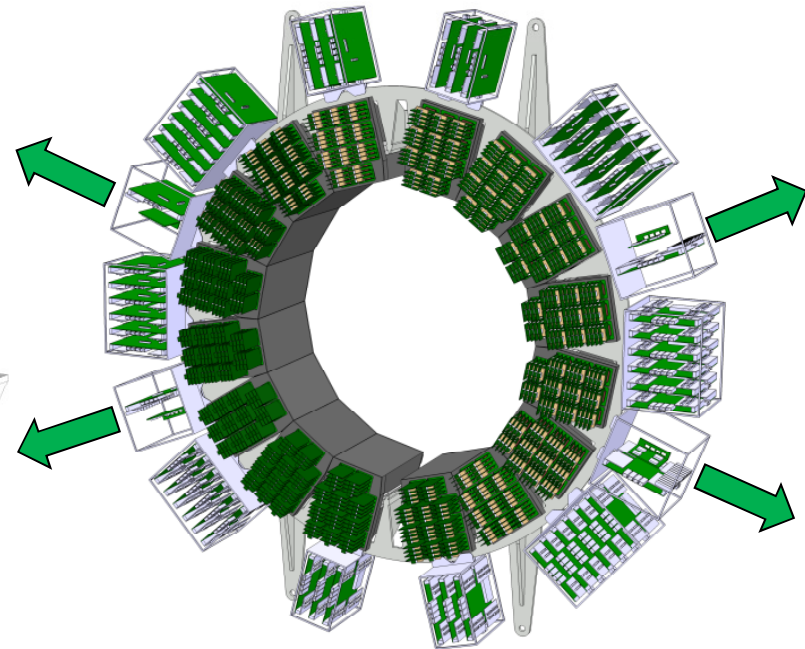


Radiator bars / SciTil support	
Internal radius	448mm
External radius	538mm
Total weight	≈ 400kg
z-position	-1190... +1270mm
Δz	2460mm

Barrel DIRC Cable Routing



- Readout electronics arranged in sub-racks.
- Cables and supply lines merged in each quadrant.



Barrel DIRC Cable Routing

Table 7.2: Table of the present status of the total number of cables and supply lines. In the single cross section the insulations are included.

Type	Connection	Number of units	Cross section [mm ²]	
			Single unit	Total
HV cables	176 MCP-PMTs	176 coaxial cables	15	2640
LV cables	44 TRBs	88 cables	7	616
Readout cables	4 TRB hubs	4 ethernet cables	30	120
FEE cooling lines	FEE	4 inlet lines	250	1000
	FEE	4 outlet lines	250	1000
Nitrogen supply lines	prism & radiator boxes	32 inlet lines	29	928
	prism & radiator boxes	32 outlet line	29	928

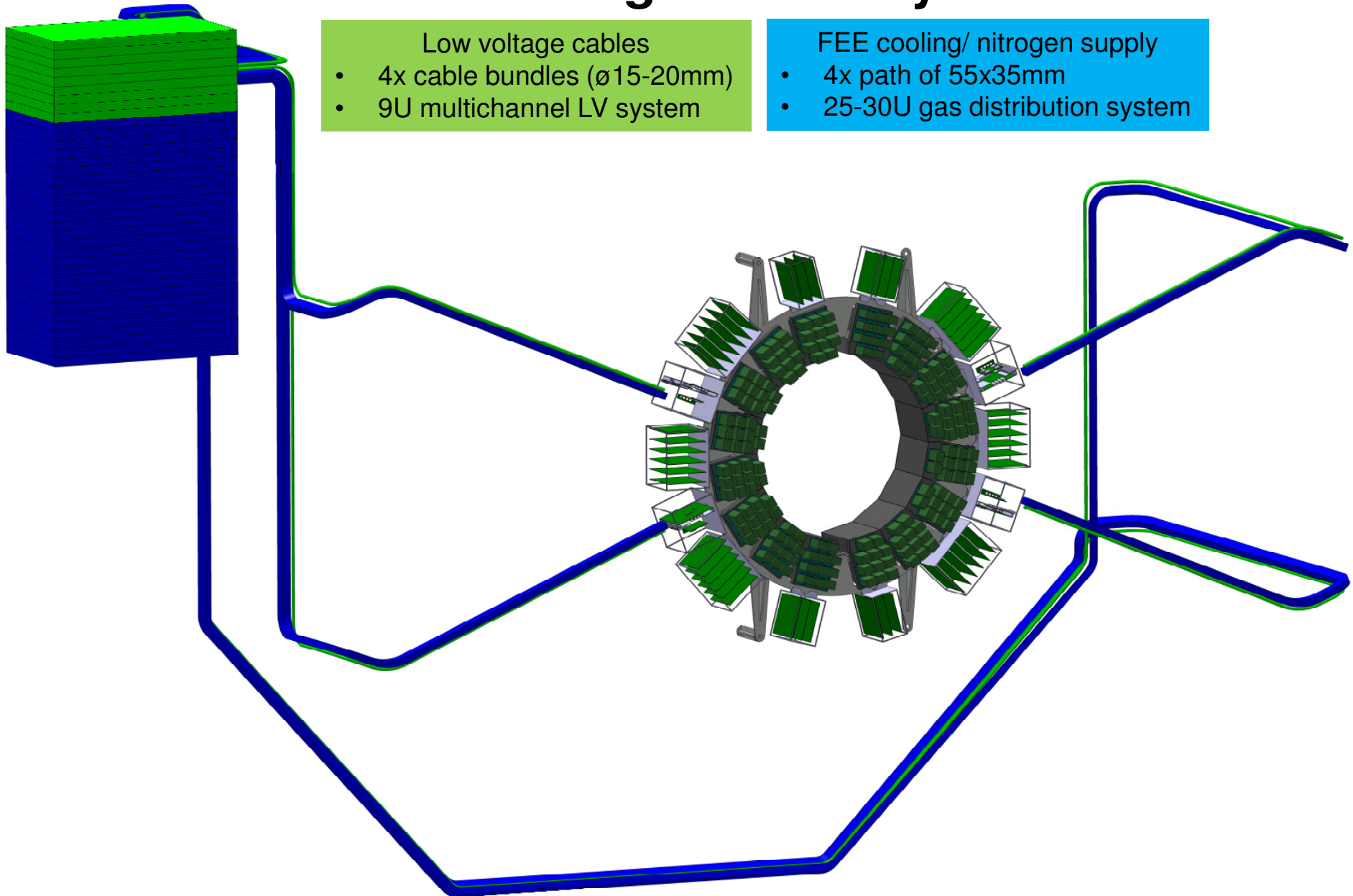
Cable routing to balcony west rack

Low voltage cables

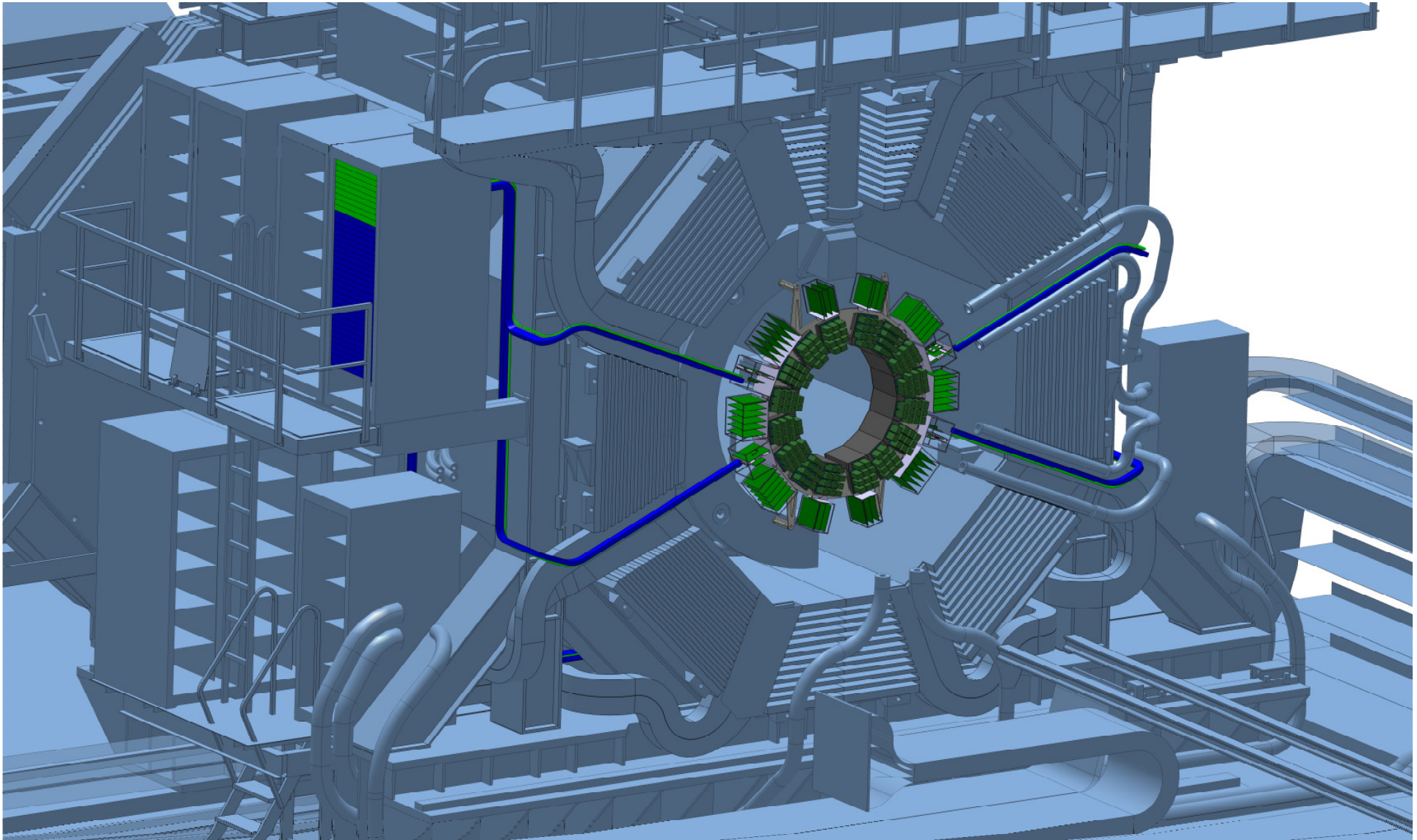
- 4x cable bundles (ø15-20mm)
- 9U multichannel LV system

FEE cooling/ nitrogen supply

- 4x path of 55x35mm
- 25-30U gas distribution system

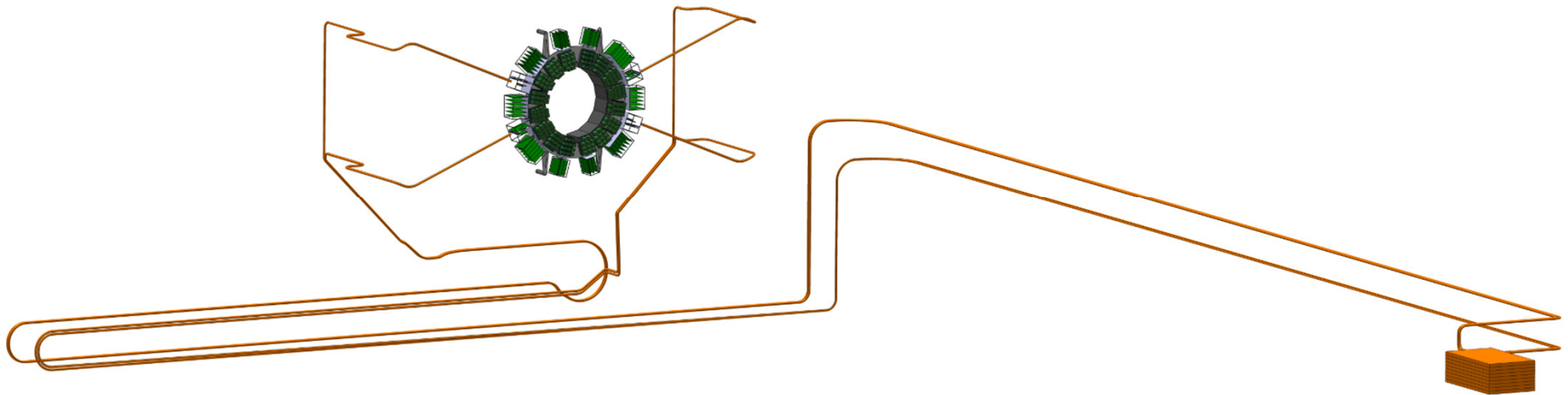


Cable routing to balcony west rack

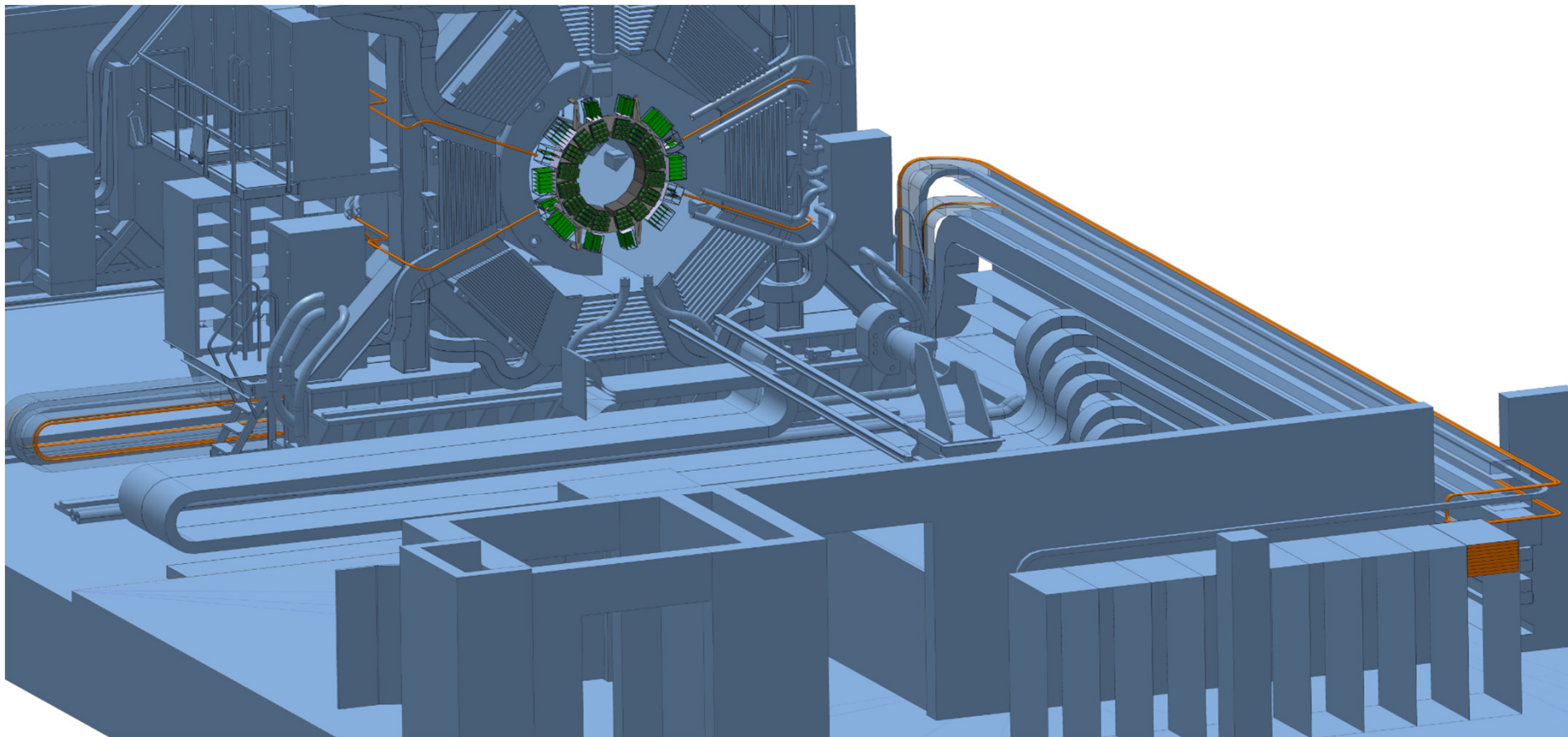


Cable routing to service area E10

- High voltage cables
- 4x cable bundles (ø30mm)
 - 9U multichannel HV system



Cable routing to service area E10



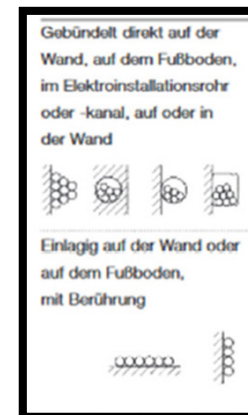
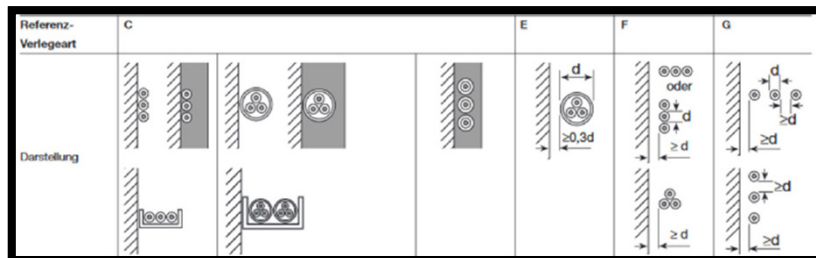
Selection of cables

DIN VDE 0298-4

Installation types and maximum ampacities of cables.

Needed information to check the maximum ampacity:

- Installation types (in/on walls; open/closed cable tray; cable bridge; etc.)
- Maximum ambient temperature
- Number of cables in one cable tray
- etc.....



Summary

- Barrel DIRC cable routing request to TC (routing to balcony west rack and service area E10).
- More information about common used cable trays are needed.