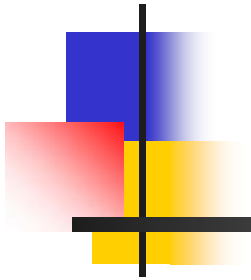


ILD Barrel Yoke Inner Radius

Uwe Schneekloth

DESY

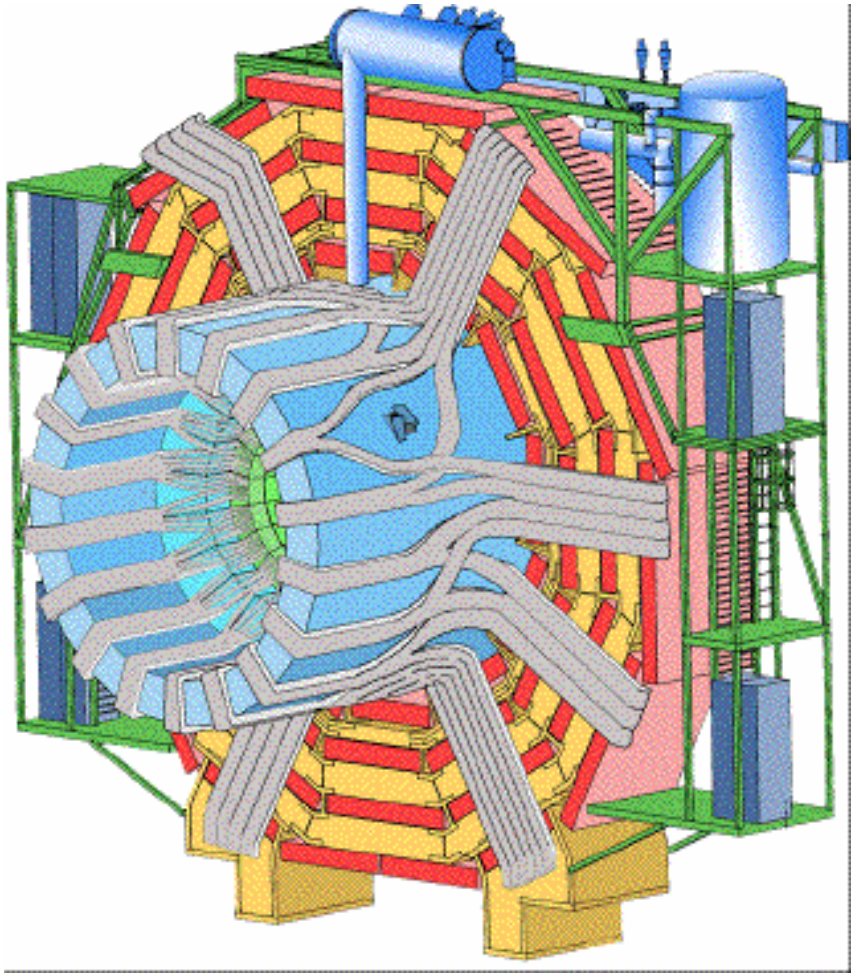
29.10.2008

Space between Cryostat and Yoke

CMS style assembly

- Barrel consists of 5 rings
- All inner detector (tracking, calorimeter) services are routed between the outside of the cryostat and the first layer of muon chambers

Radial space between cryostat and muon chambers is about 30cm



New ILD Parameter List

ILD assembly

- Yoke 3 barrel rings

New parameter list

- Radius of cryostat fixed
  - r_{in} 3491mm, r_{out} 4241mm
- Inner radius of yoke barrel
  - 4271mm
  - Only 30mm space
- Need space for services, muon chambers and clearance for moving barrel ring

Space between Cryostat and Yoke

Asked components for required space for services between cryostat and yoke.

d radial thickness, assuming evenly distributed along the circumference

	area (m2)	d(mm)		
TPC	1	37		R.Settles'
ECAL	0.0205	1		C.Clerk, H.Videau
AHCAL	0.3026	11		M.Reinecke, K.Gadow
DHCAL	0.176		7	Laktineh
SET				no final reply yet
Sum		49		
Assuming factor 2 for routing and not included items:		98		

Space between Cryostat and Yoke

	d(mm)	
Component services	98	
Barrel yoke vertical deformation	4	taken from CMS
Assembly tolerances	5	
Clearance for moving barrel ring	50	CMS
Space for inner muon chambers	50	
Sum	207	

In principle, space available in barrel corners

- In CMS space was taken by alignment systems
- Probably won't need 12 alignment systems, only a few
- CMS needs additional space for cooling of cables. Not clear whether needed in ILD. Asked a few people. Asked CMS expert about power.

Conclusion, would keep about 210mm between cryostat and first barrel iron plate