

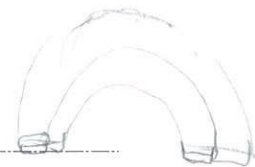
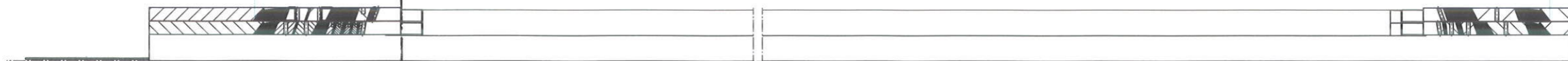
1. Breakdown structure for LHCMBH_C has been drafted
2. First meeting to organize the content of the drawings
3. Need to confirm that we start designing the PROTO55 in this folder
4. Need to decide on orientation of Lead End / Return End on the drawings (short model V4 was decided to optimize the view on the layer jump/inner layer – Lead End on the right of the drawing -, ← → opposite to usual) (CERNV5 is currently being redrawn the opposite way ← → mismatch of representation with tooling)
5. Need LHCMBH_C 2D drawings of small parts as soon as possible for: Production / metrology / coherent link between manufacturing drawings and QA (keys, spacers, Saddles, ...)

Longitudinal Reference Line
For All Assembly operations
and coordinate measurements

Cut A-A

Lc THEORETICAL = 5416.8

D



A-A
1:2
Tamenen
à l'échelle 1:1

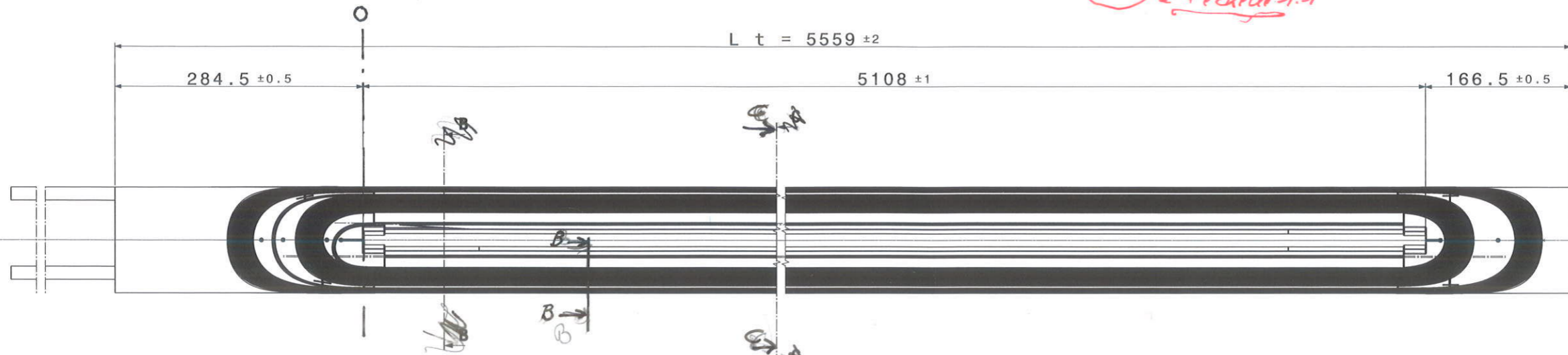
L t = 5559 ± 2

284.5 ± 0.5

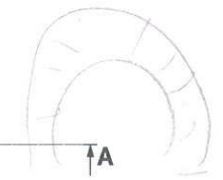
5108 ± 1

166.5 ± 0.5

A



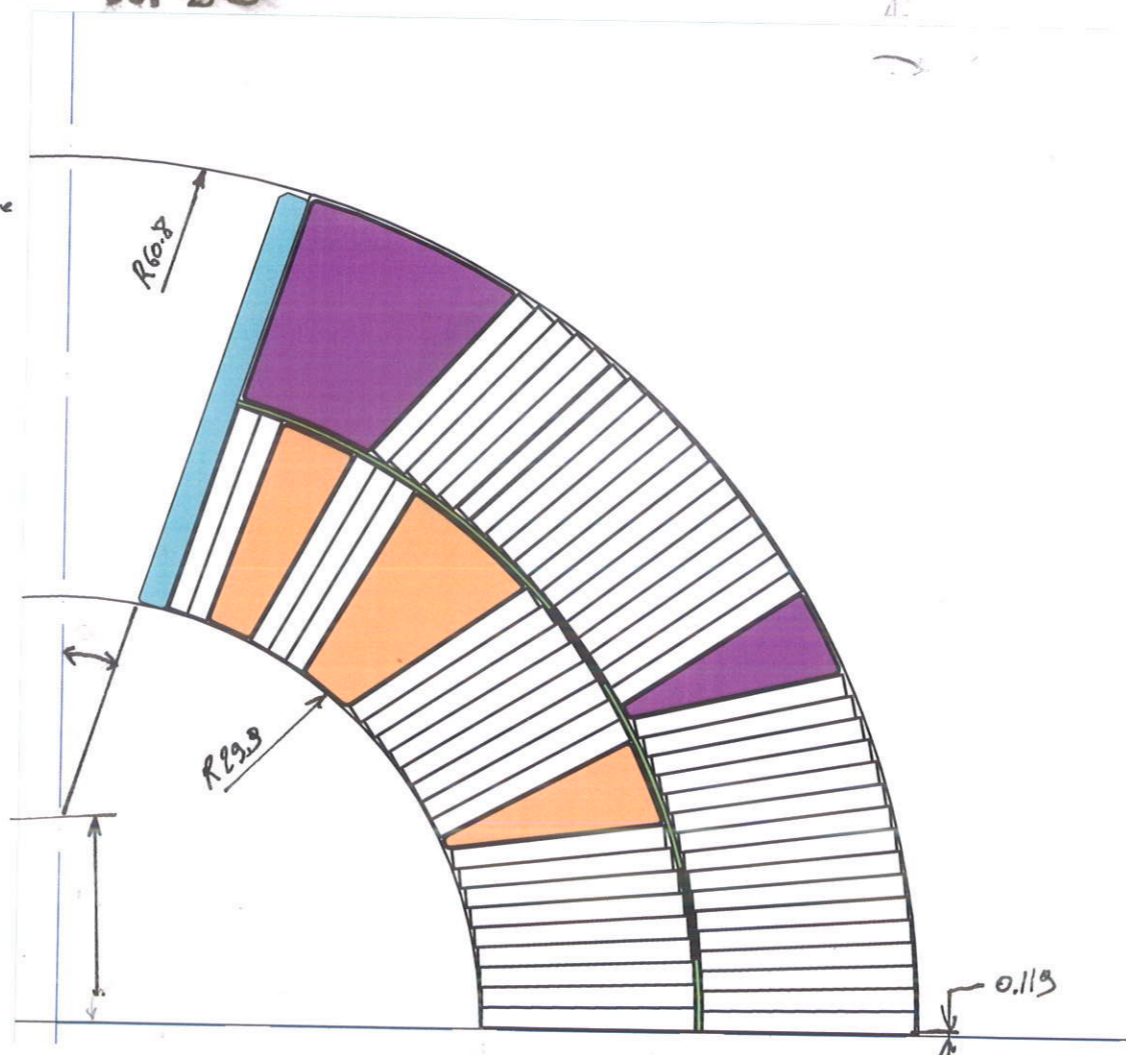
C-C



Notes

- The Coil is drawn with its structure drawn with its
- The coil is drawn at room temperature after reaction and impregnation, and its compressed state (collared) with nominal shimming as in drawing LHCMBH.C0001
 - Metrology of the coil is to be carried out at Room Temperature (20°C) in stress free conditions.
Deviations from nominal dimensions have to be added/subtracted from nominal shimming Plan as described in EDMS Doc. xxxxxx

Cut B-B



LHCMBH_C0005
11T DIPOLE - COIL
Coil (external trace)

montrer les vues intéressantes : trimming saddle, L^{tr}
Défaut angulaire LP/key
Gap LP/key
Caractéristiques électriques L, R, test
Deburring MP, LP

Note Smeckens: ① Définir Tolérances en cohérence avec Metrologie
② Centre de gravité sur coupe A-A et C-C.
③ Torsion maximale lors des manipulations (0.5mm/m)
④ Storage conditions (points de supports et levage)
⑤ Poids

UNLESS OTHERWISE MENTIONED, APPLICABLE ISO GPS STANDARDS ARE THOSE PRIOR TO 2010-08-01 REGARDLESS OF THE DRAWING DATE

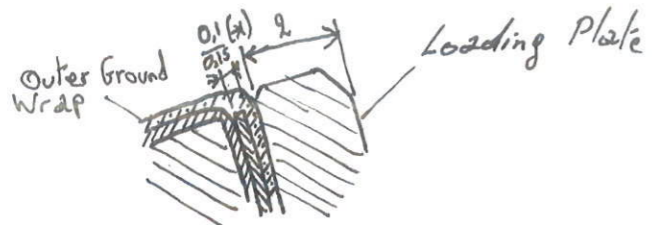
QTY	DESCRIPTION	POS	MAT.	OBSERVATIONS	REF. CERN
1	ENSEMBLE LEAD OUTER (JUN 2012)	20			ST0427504
1	ENSEMBLE LEAD INNER (JUN 2012)	19			ST0427591
1	ENSEMBLE RETURN OUTER (JUN 2012)	18			ST0425669
1	ENSEMBLE RETURN INNER (JUN 2012)	17			ST0425675
1	Fibre impregnation 5m	16			ST0539175
1	Fibre de verre outer 5m	15			ST0539233
1	Nextel 5m	14			ST0539239
1	Fibre de verre inner 5m	13			ST0539164
1	END WEDGE INNER 5m	12			ST0539151
1	END WEDGE OUTER 5m	11			ST0539137
1	Saddle splice block 1 INNER LEAD 5	10	St. Steel 316 (1.4435)		ST0539095
1	Saddle splice block 2 OUTER LEAD 5	9	St. Steel 316 (1.4435)		ST0539090
1	Extrusion cable OUTER 5m	8			ST0539042
2	11T DIPOLE 5M LOADING PLATE	7	St. Steel 316 (1.4435)	LHMBH_P0001	ST0539035
1	Cable Return bobine V3 11 Tesla	6			ST0436675
1	Cable LEAD bobine V3 11 Tesla	5			ST0436641
1	11T COIL 5m ASSY LEAD INNER	4			ST0618407
1	11T COIL 5m ASSY LEAD OUTER	3			ST0618405
1	11T COIL 5m ASSY RETURN OUTER	2			ST0618403
1	11 T coil 5 m assy return inner	1			ST0618348

QTY	DESCRIPTION	POS	MAT.	OBSERVATIONS	REF. CERN
1	11 T DIPOLE MAGNET COLD MASS				
1	11T DIPOLE COIL ASSEMBLY 5m				
1	Ensemble bobine 5m 11Tesla				

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23

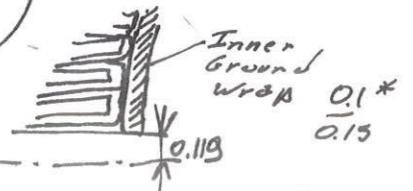
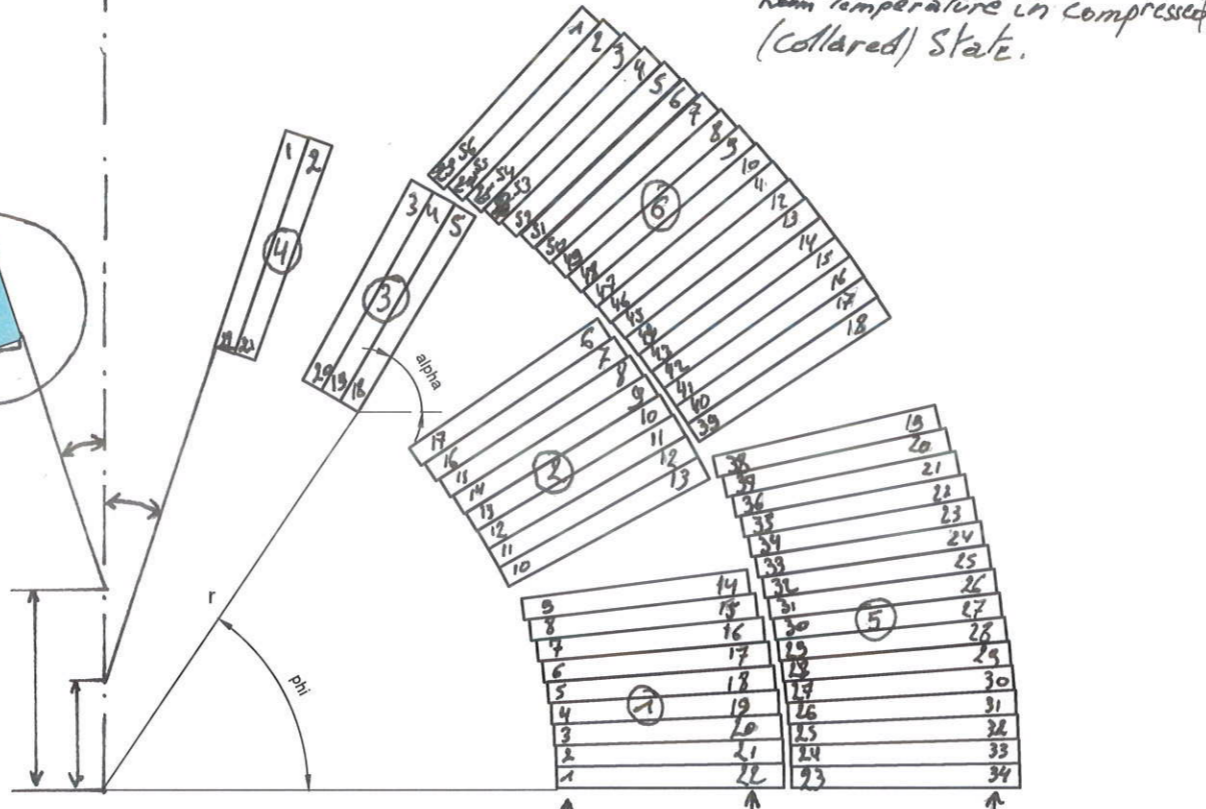
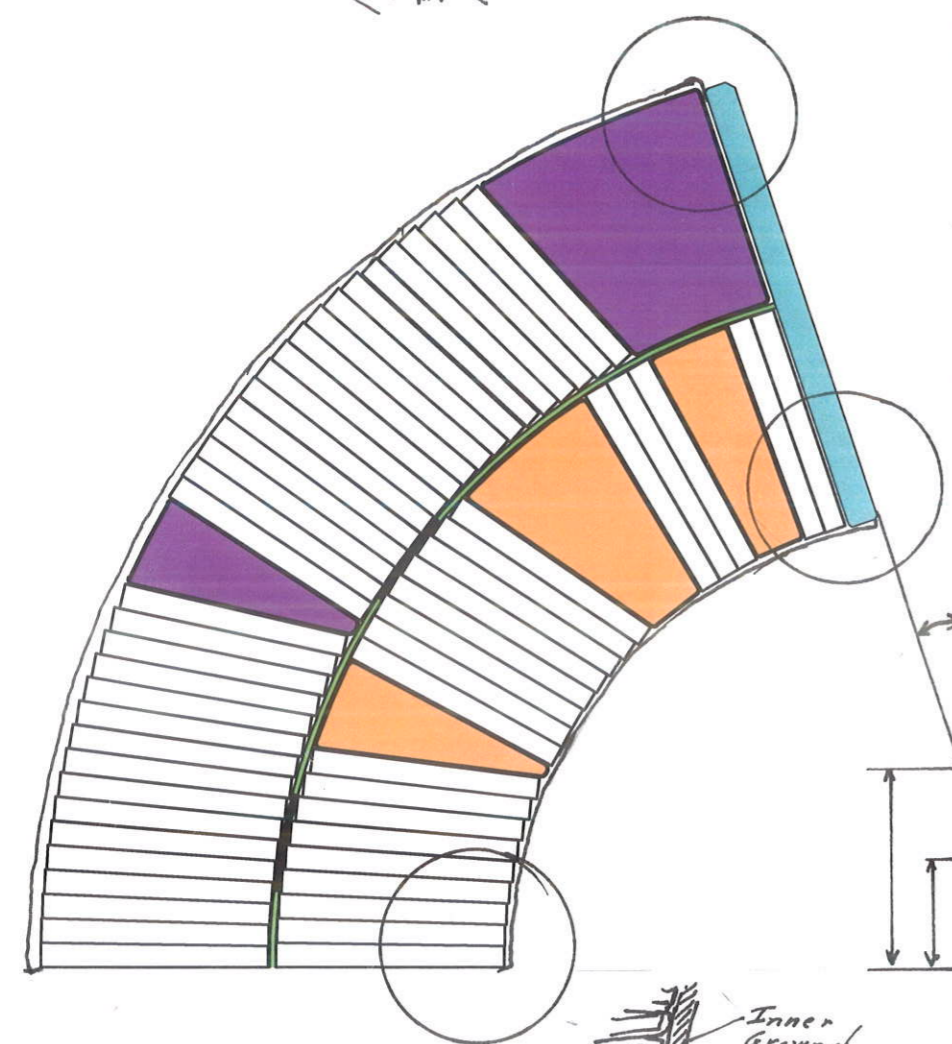
Coil Components and Main Dimensions

Conductor Distribution



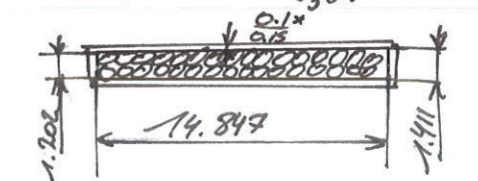
Block No	Ncond	Radius	Phi	Alpha
1	9	30	0.229	0
2	8	30	26.5021	28
3	3	30	55.7611	59
4	2	30	70.3836	70
5	16	45.55	0.15	0
6	18	45.55	30.1226	33

Note: Conductor Position given at Room Temperature in compressed (collared) state.



Insulated Cable Reacted

2x20 strands Nb₃Sn

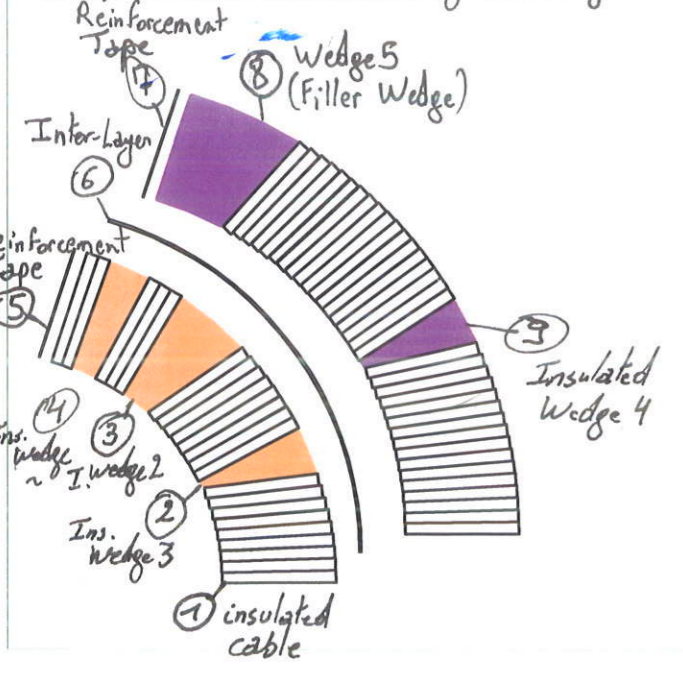


Wedge Insulation

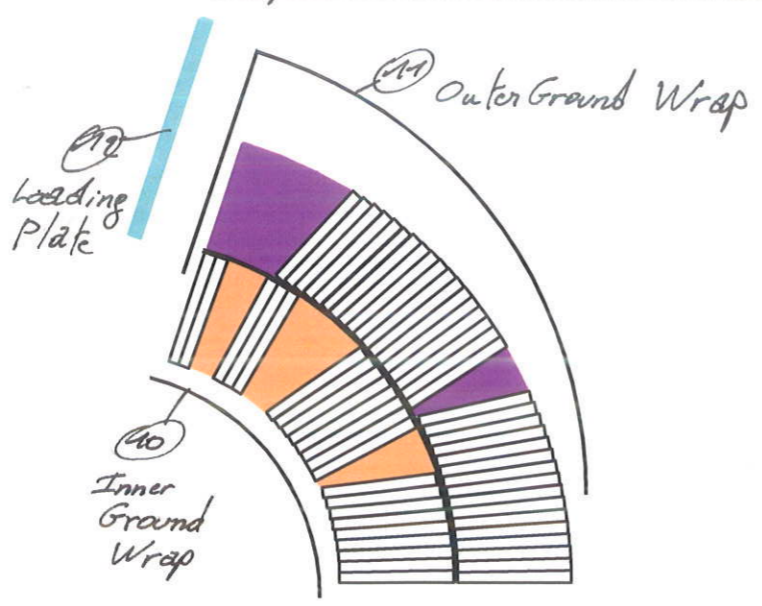


Note: For Wedges 1,2,3,4 use Si-Glass sleeve (φ10mm)
- For Wedges 5 use Si-Glass sleeve (φ4mm)

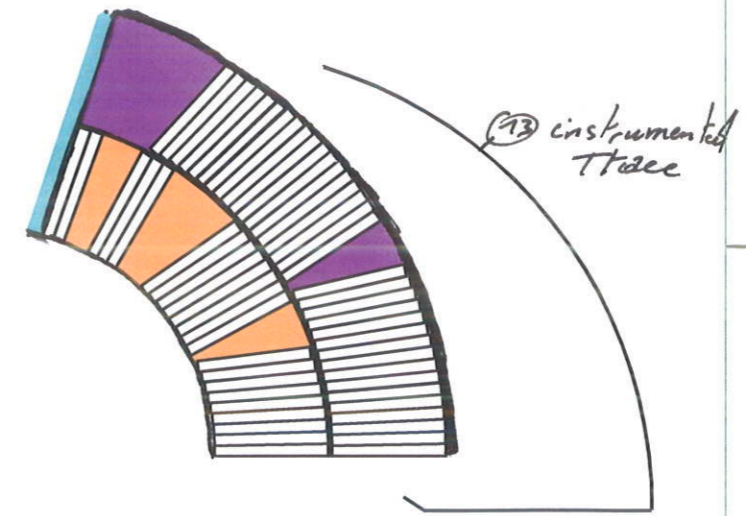
Components assembled during Winding



Components assembled after Reaction

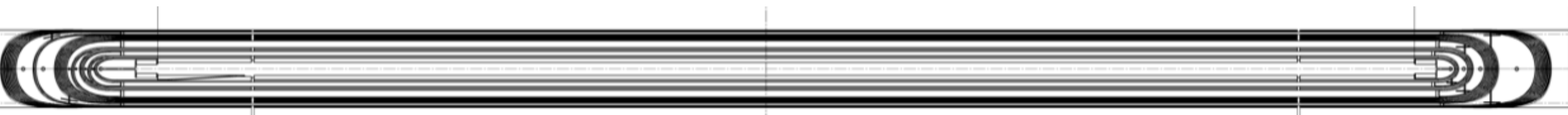
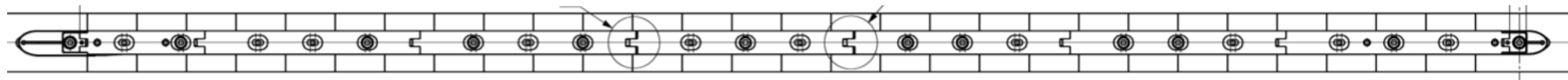
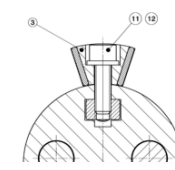


Components assembled after Impregnation

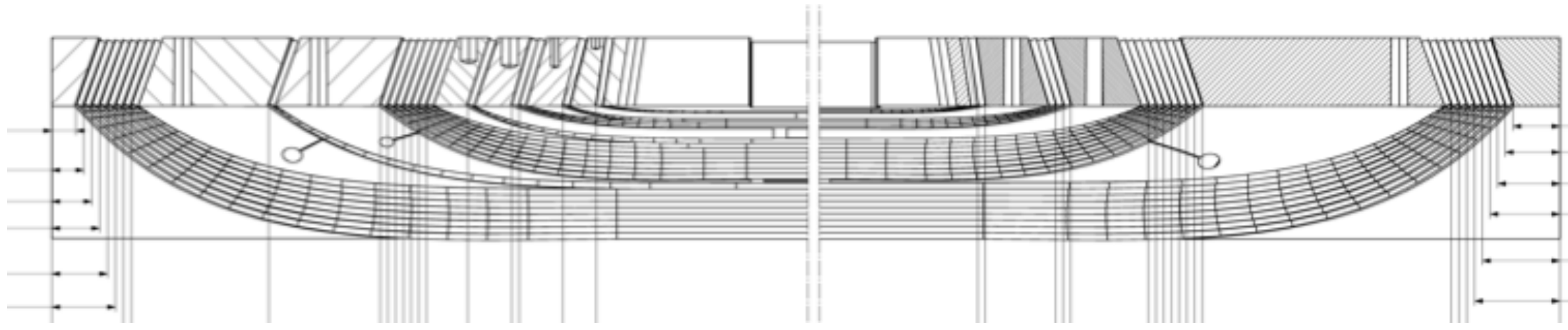
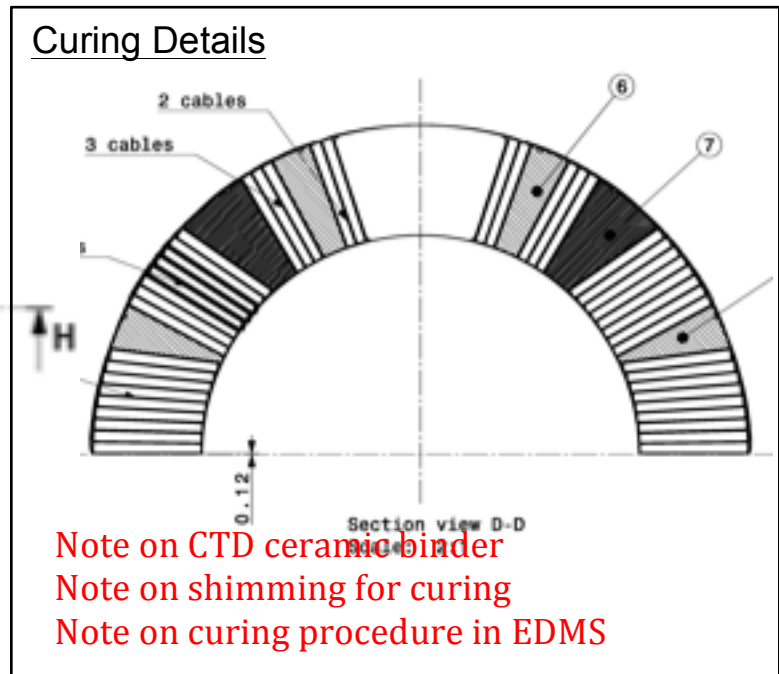
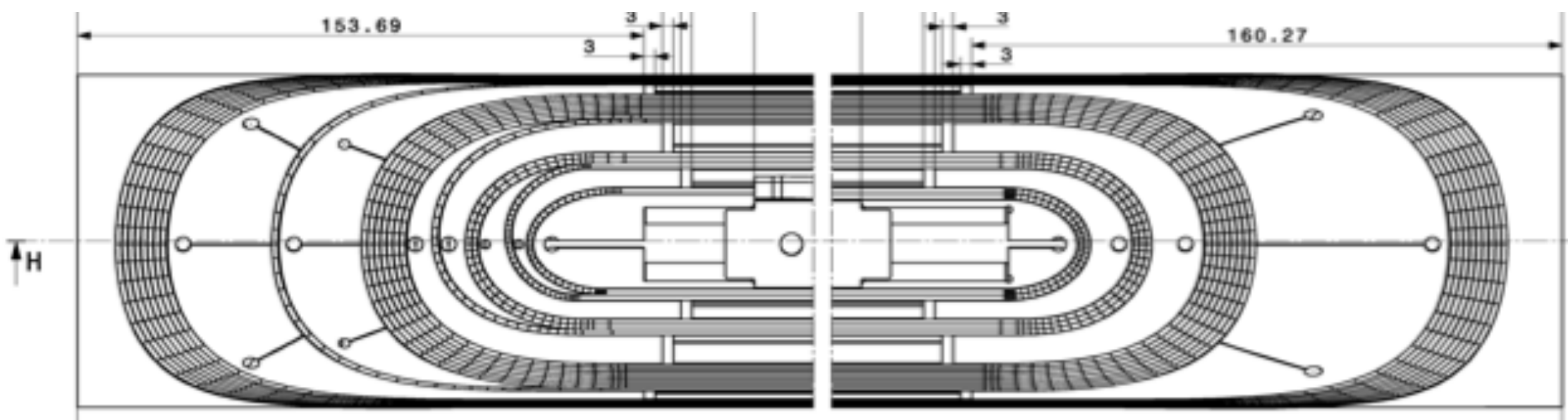


(* Dimensions with asterisks are for woven textile and read as follows
0.1 (*) → Thickness in compressed state as in the model
0.15 → Thickness according to ISO

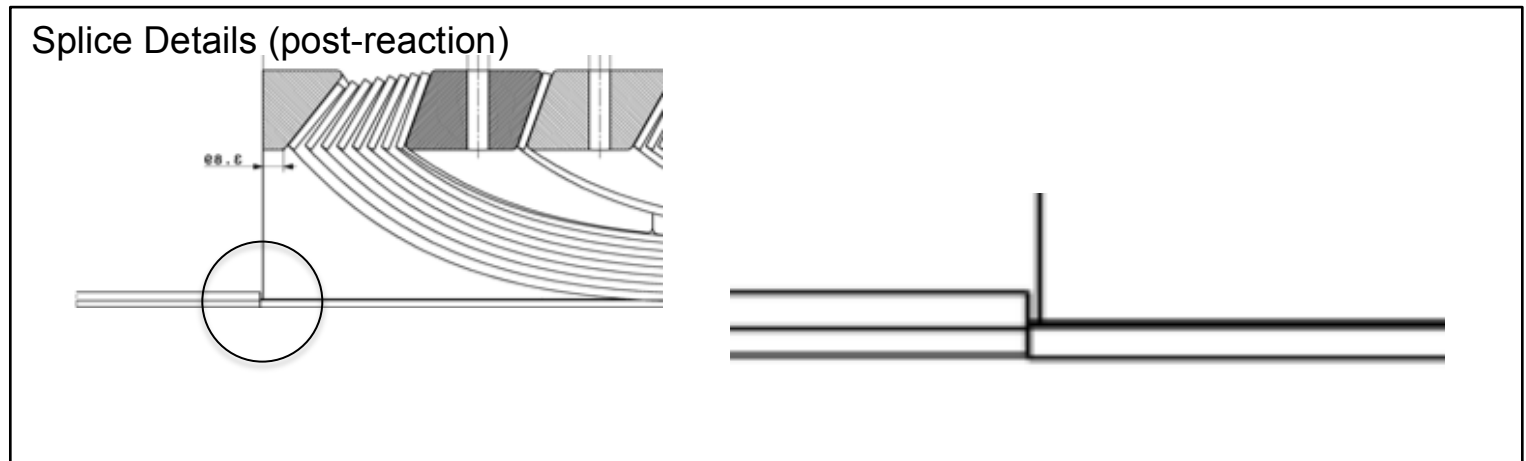
MT DIPOLE COIL
Coil Cross-Section
LHCMBH-C0006



Cable length
 Leads length
 Pole length for winding
 Alignment of keys
 Use of special saddles



Note about preparation of spacers and glass tapes
 Note about winding monitoring in EDMS
 Location and length of wedge segments



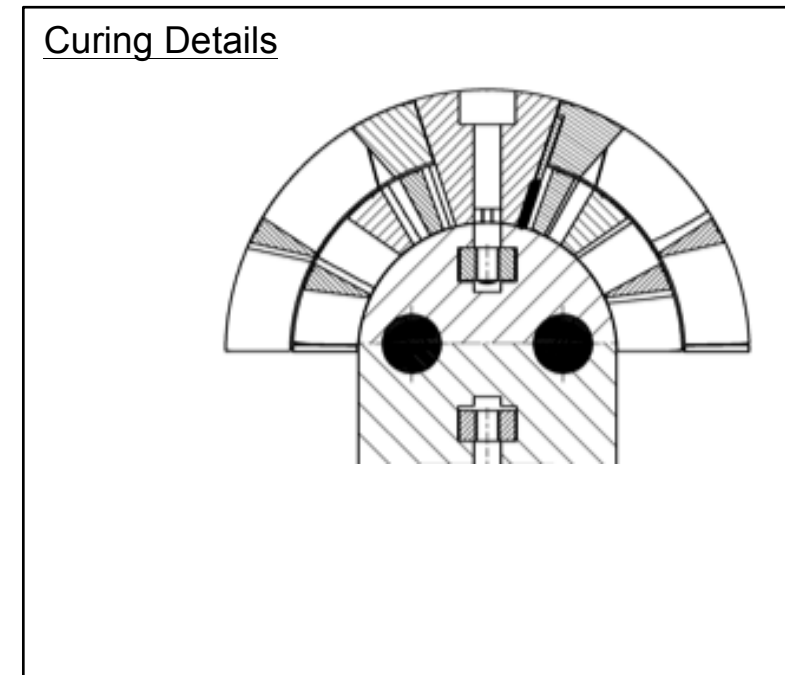
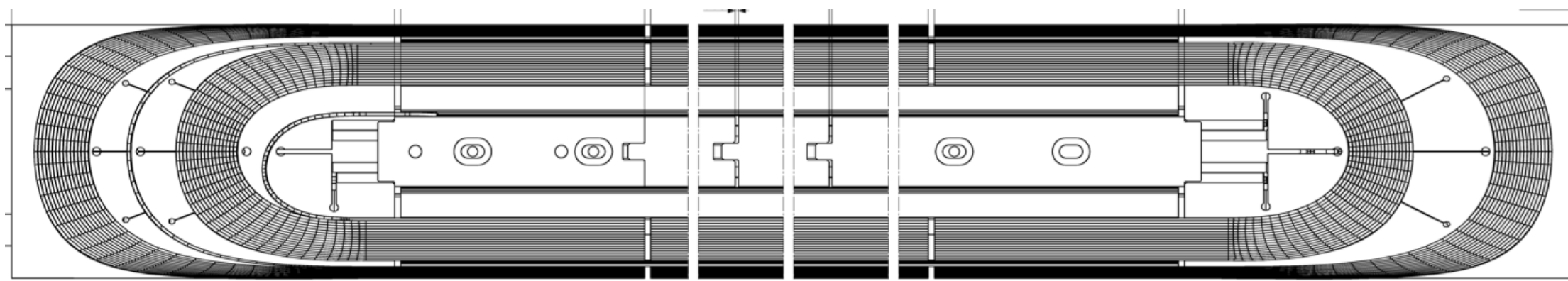
11T DIPOLE
Unreacted Coil - Inner Layer Winding Details
LHCMBH_C0011

Top view of inter-layer-Pole set-up and key

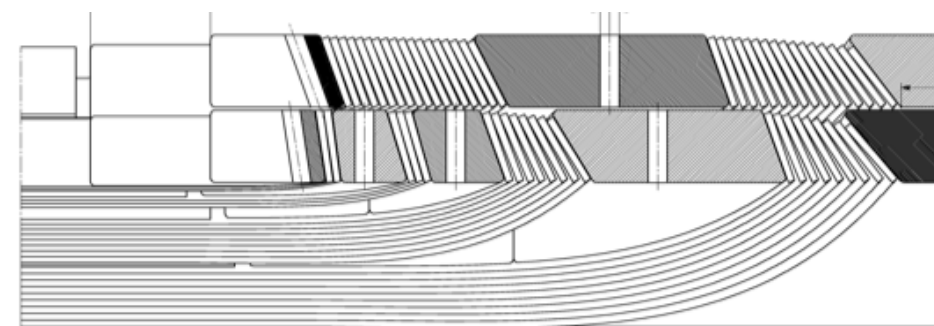
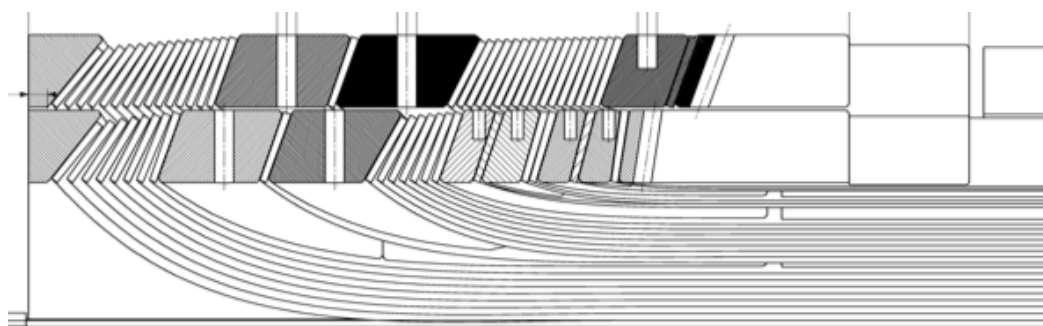
X-section Pole - key



Cable length
Leads length
Pole length for winding
Alignment of keys
Use of special saddles



Note about preparation of spacers and glass tapes
Note about winding monitoring in EDMS
Location and length of wedge segments



Splice Details (post-reaction)

11T DIPOLE
Unreacted Coil - Outer Layer Winding Details
LHCMBH_C0012