

Layout Drawings of the LHC Collider

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S. Chemli

B. Maire

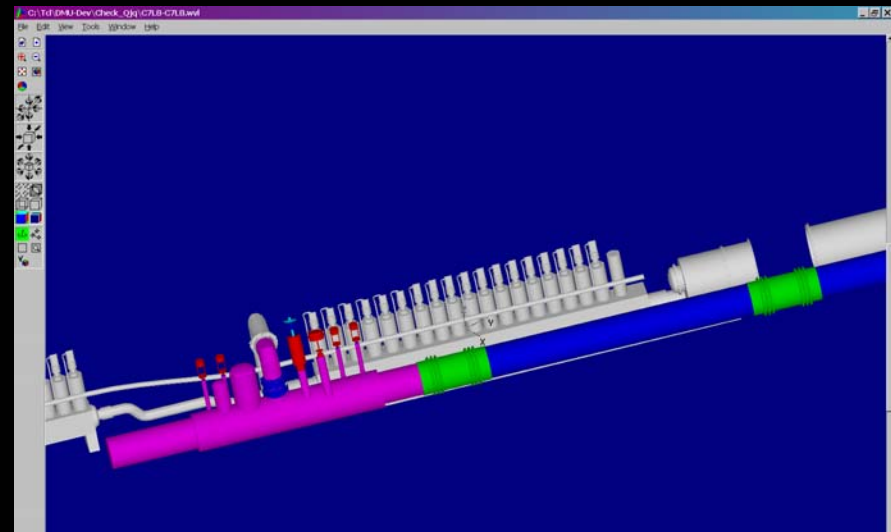
Y. Muttoni

A. Kournossenko

R. Zalyalov

LHC Drawings: What do we have?

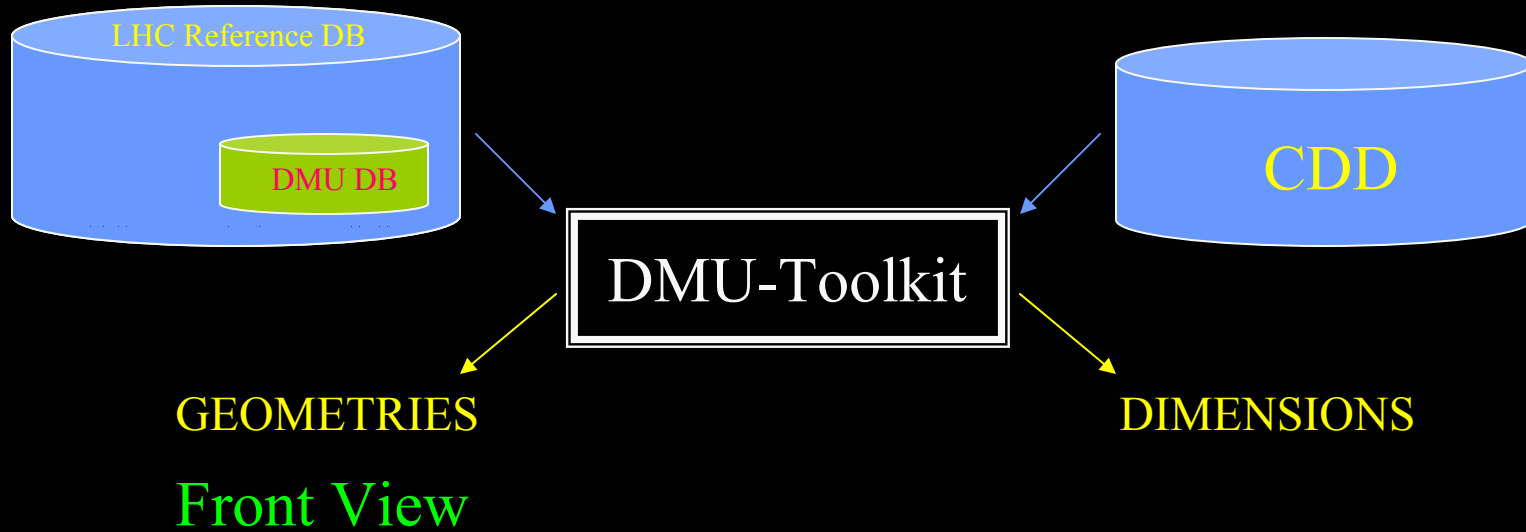
- Functional position 3D renderings of the LHC elements for the integration team.
 - Digital Mock-Up tool (DMU)
 - 3D Standards library
- Mechanical Layout 2D Drawings.



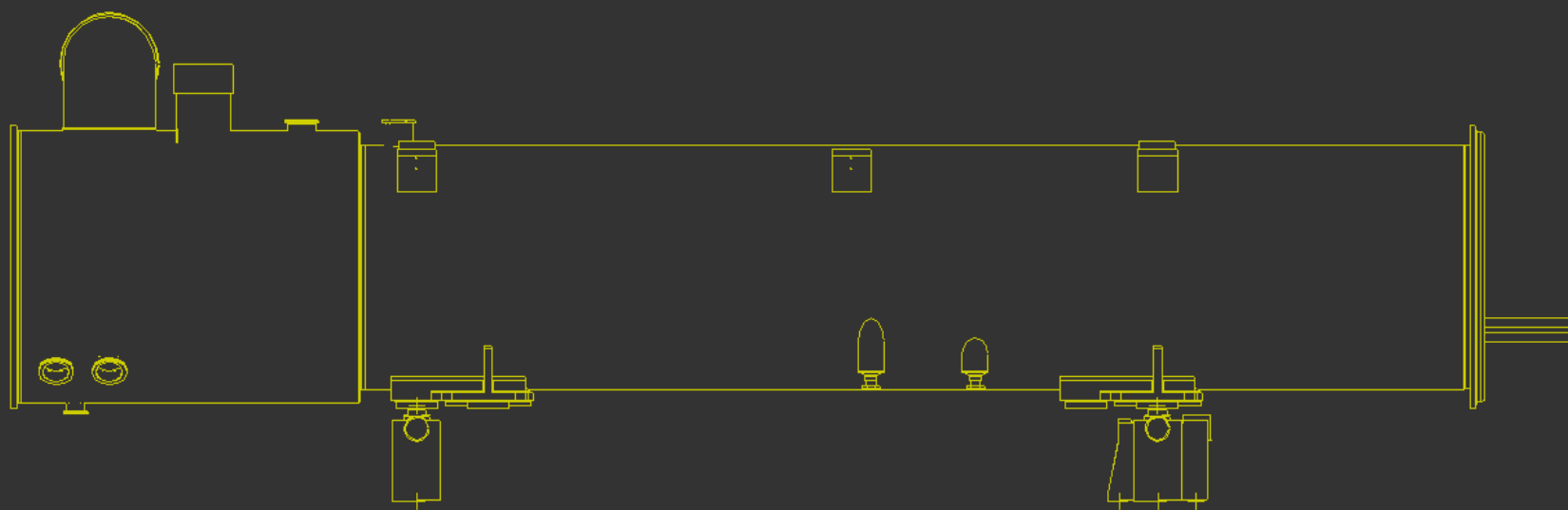
LHC Drawings: What do we need?

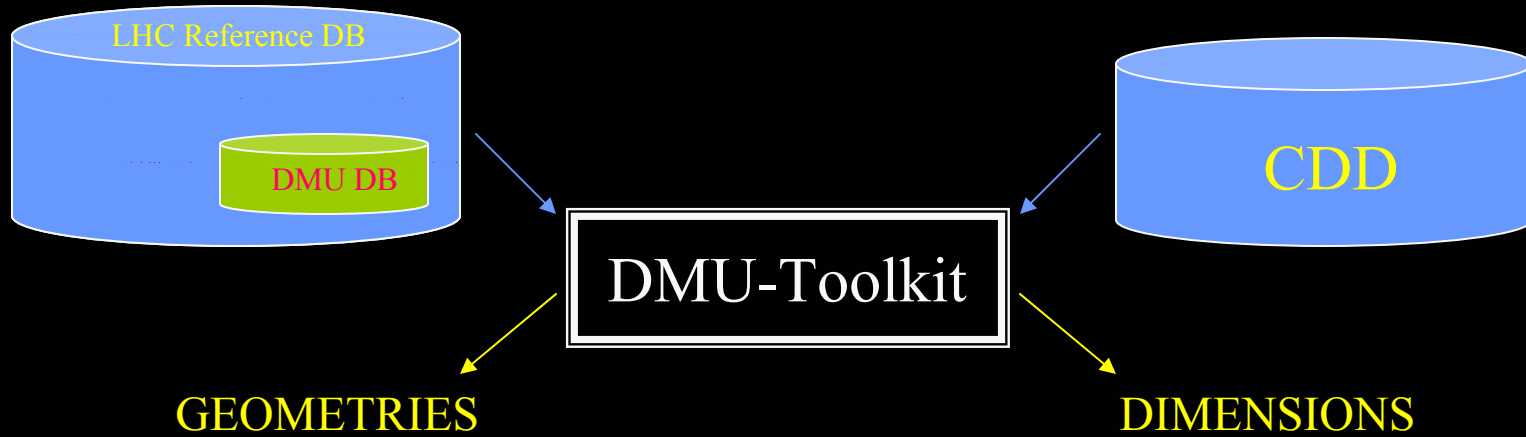
- 2D layouts of all machine systems
- Dimensioning
- Top and Front Views
- Block title with CDD number for official drawings and sticker for non-official ones
- History of changes on official drawings
- Reliable and fast service to users

Data Sources



SSS Front View





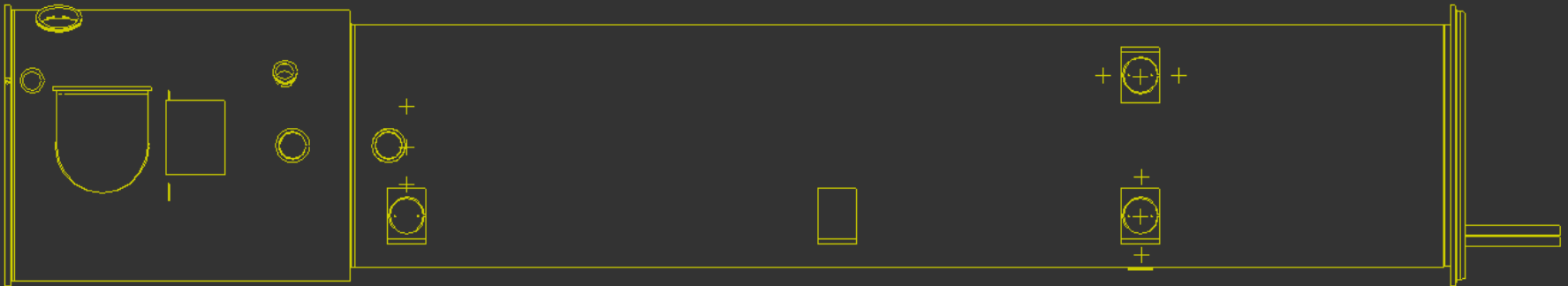
GEOMETRIES

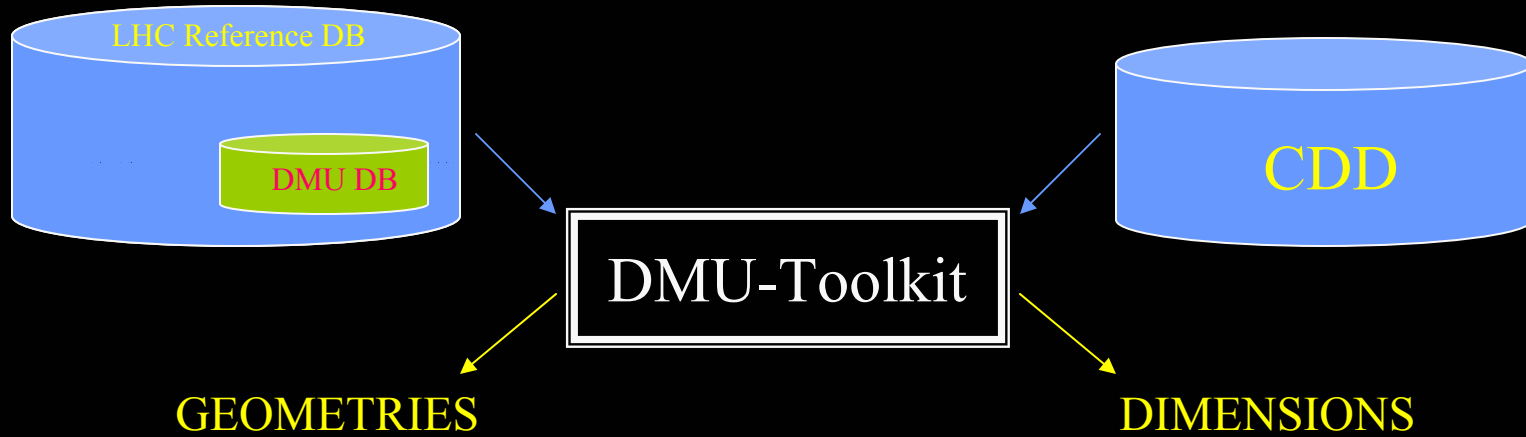
Front View

Top View

DIMENSIONS

SSS Top View





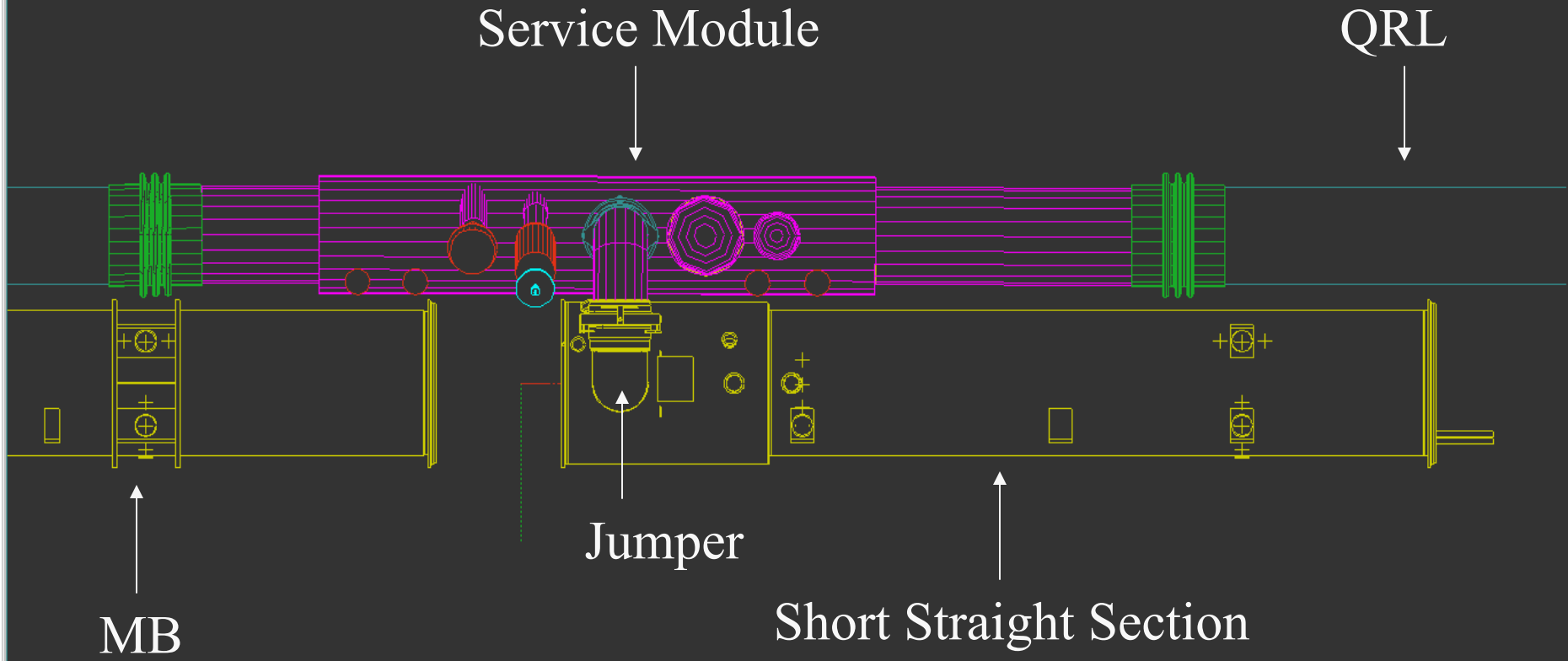
GEOMETRIES

Front View

Top View

Connection

DIMENSIONS





GEOMETRIES

Front View

Top View

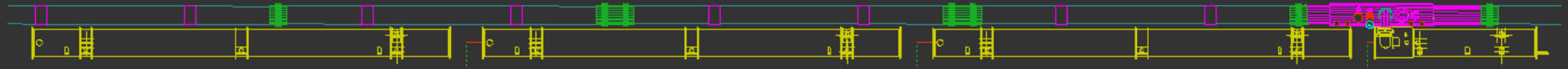
Connection

Flatten

DIMENSIONS

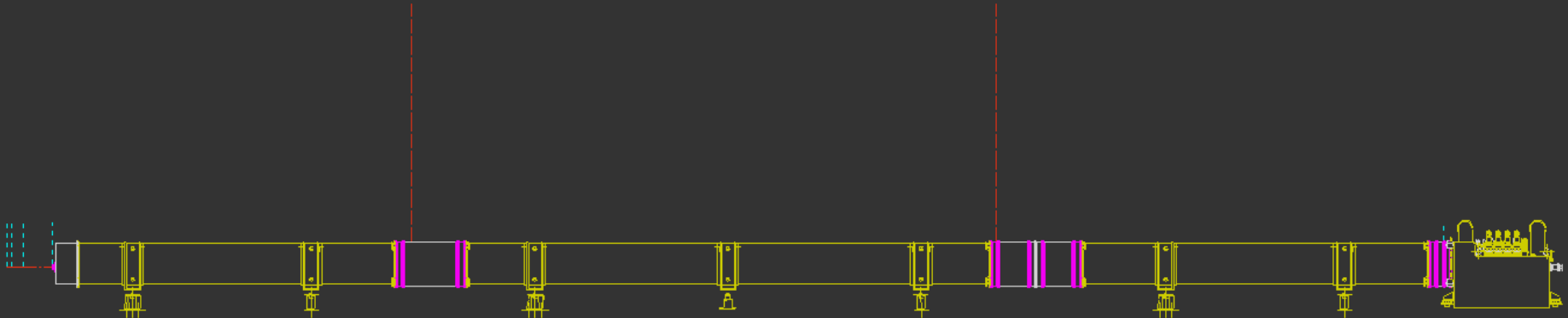
Flatten Half Cell: C17R7

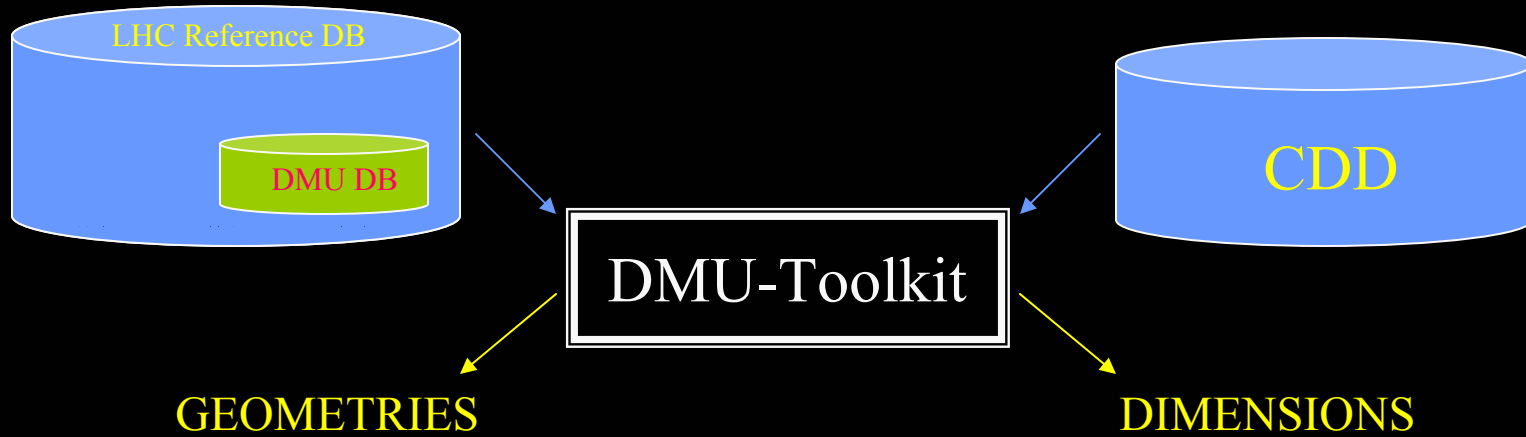
Top View



Inner Triplet: **C1R5-C3R5**

Front View





GEOMETRIES

Front View

Top View

Connection

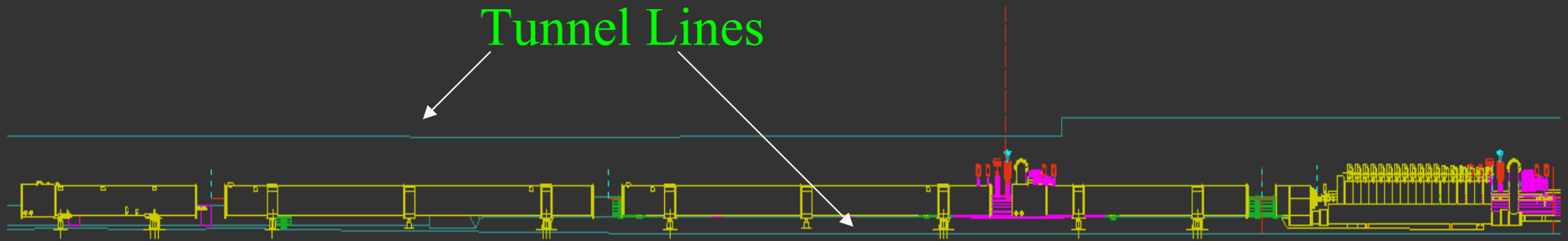
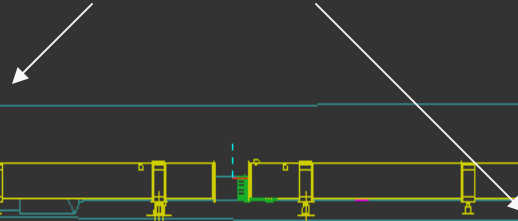
Flatten

Tunnel Lines

DIMENSIONS

C8L8-C7L8

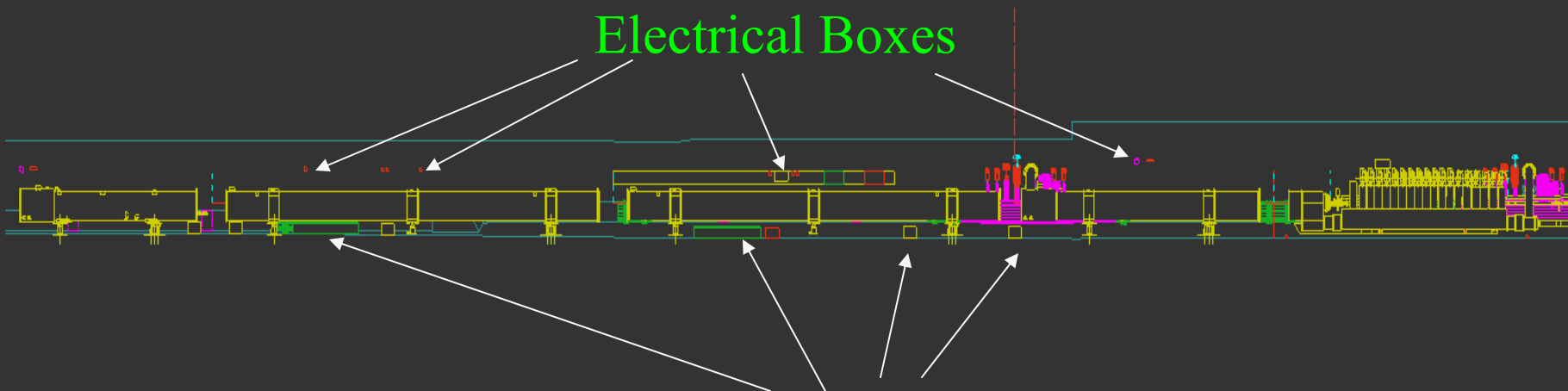
Tunnel Lines



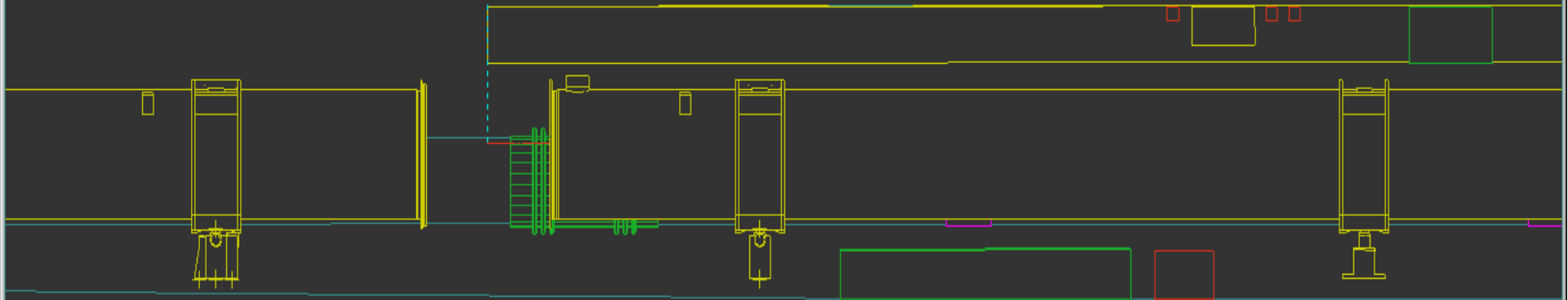
C8L8-C7L8

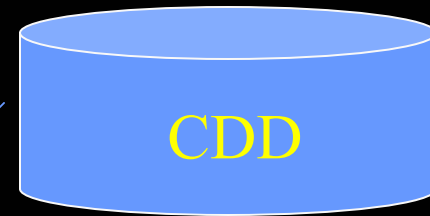
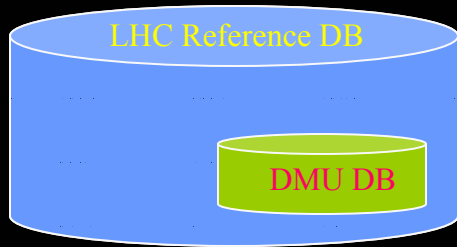
Electrical Boxes

Racks



C8L8-C7L8

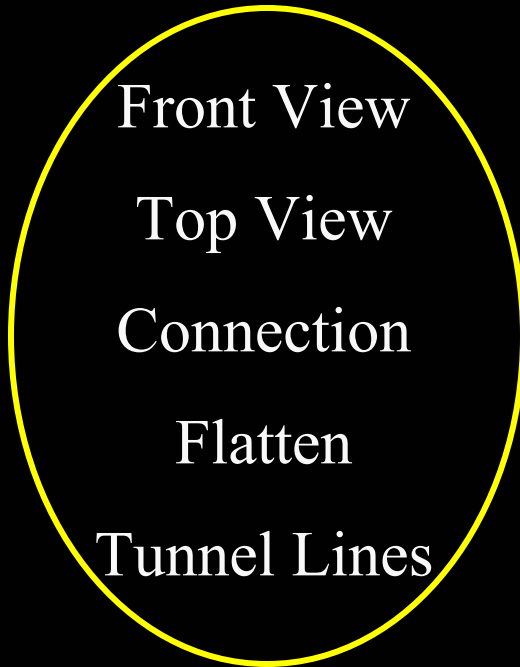


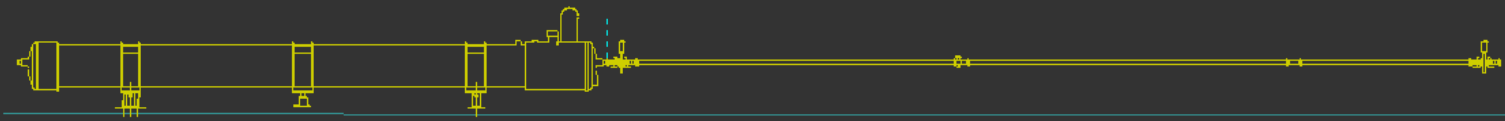


GEOMETRIES

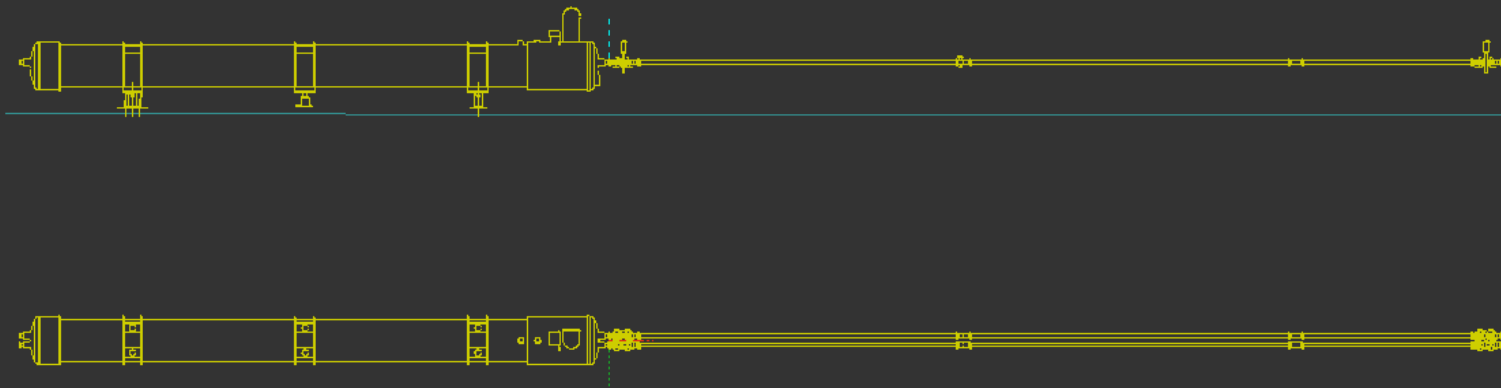
DIMENSIONS

VIEWS

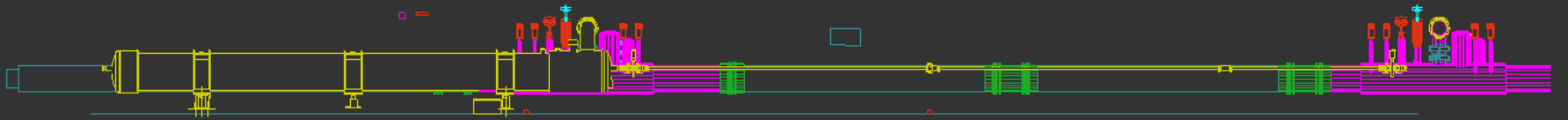
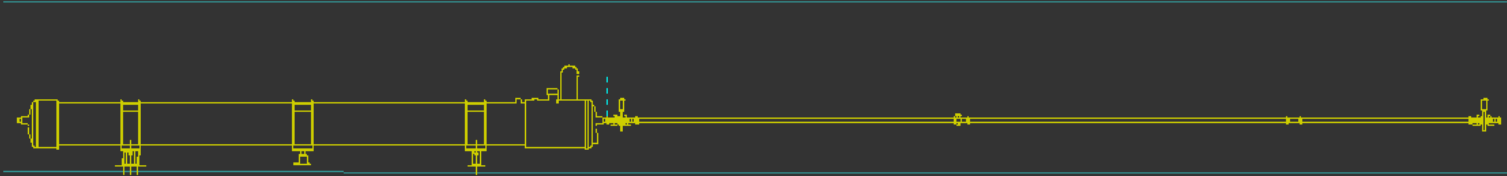




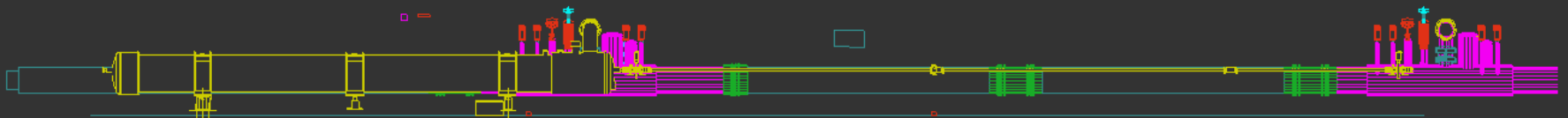
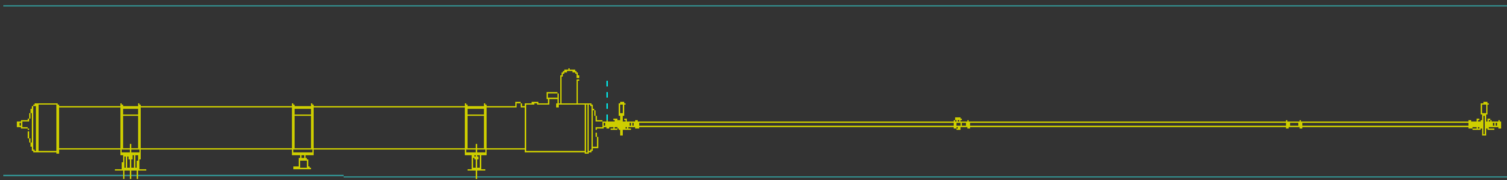
C5L8 Halfcell



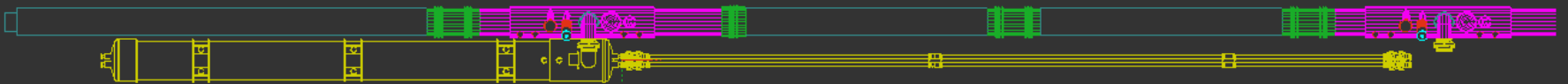
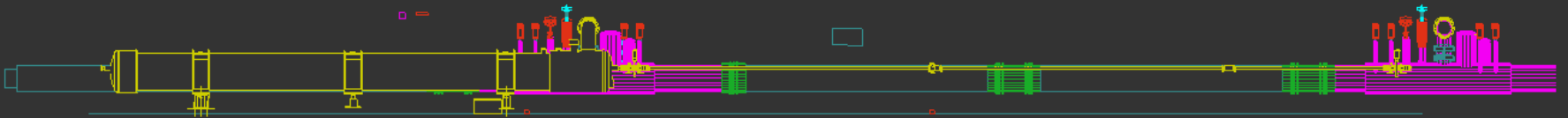
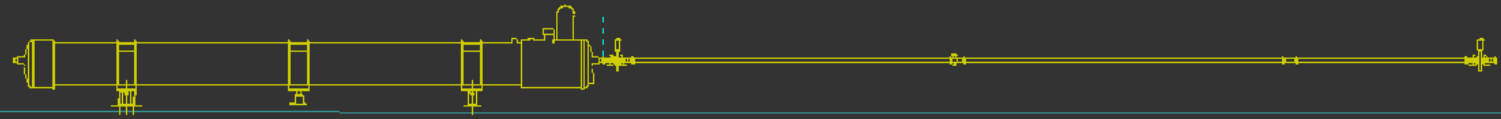
C5L8 Halfcell



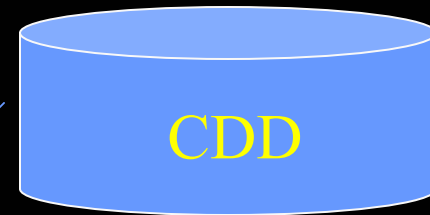
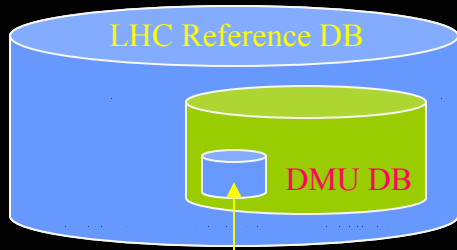
C5L8 Halfcell



C5L8 Halfccll



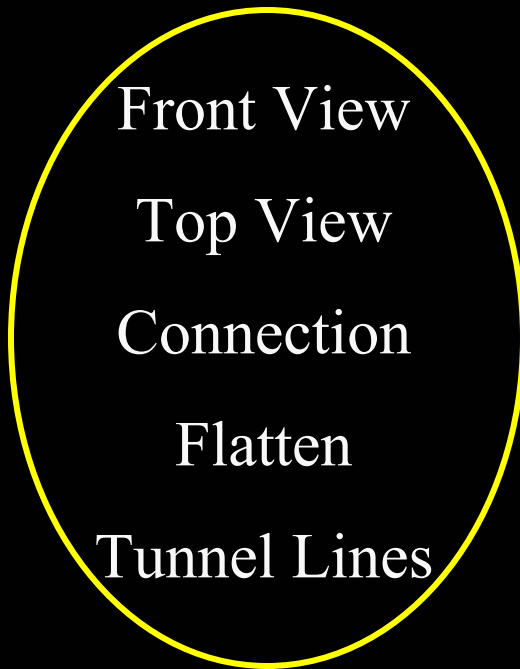
C5L8 Halfcell

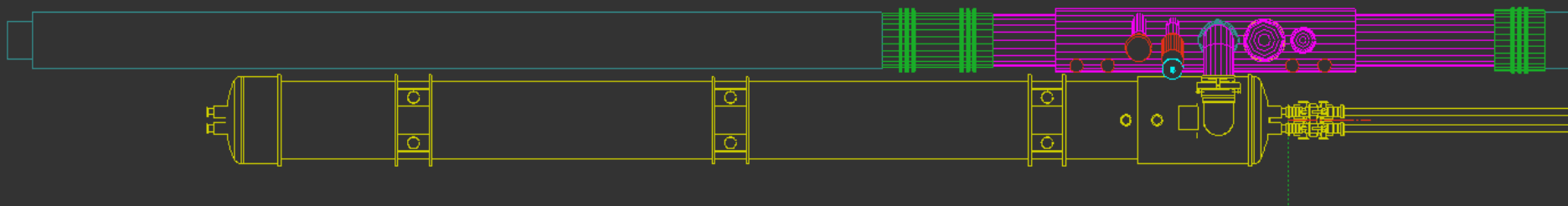


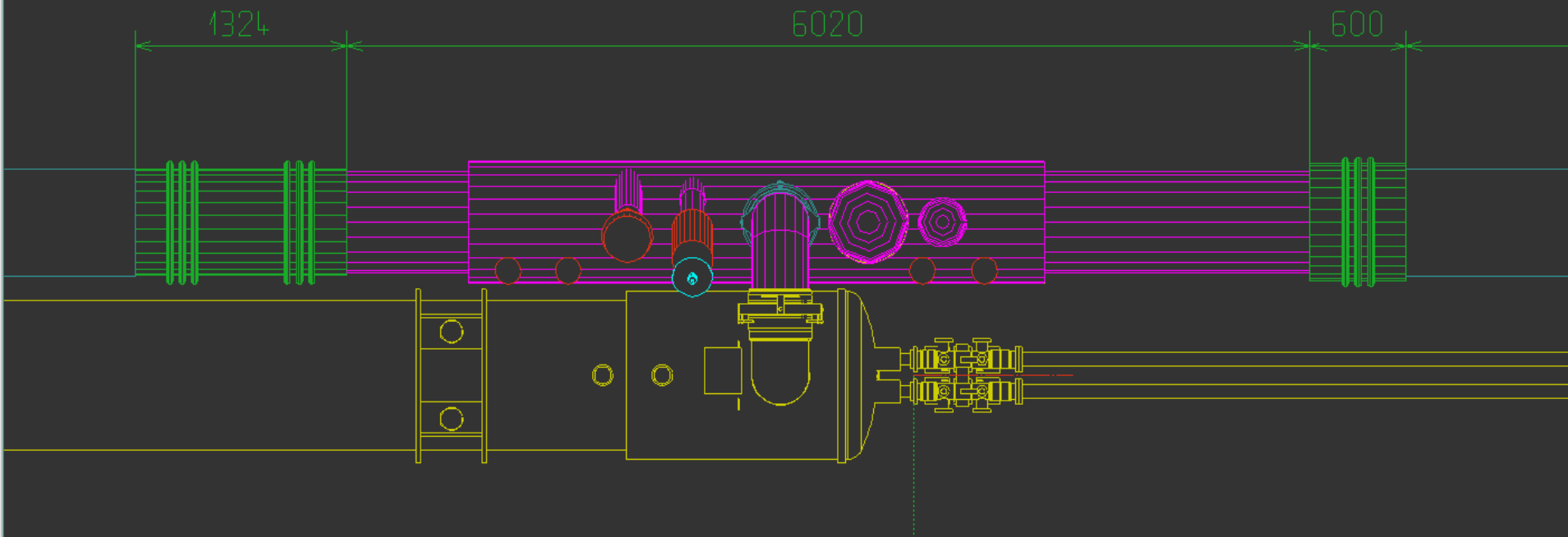
GEOMETRIES

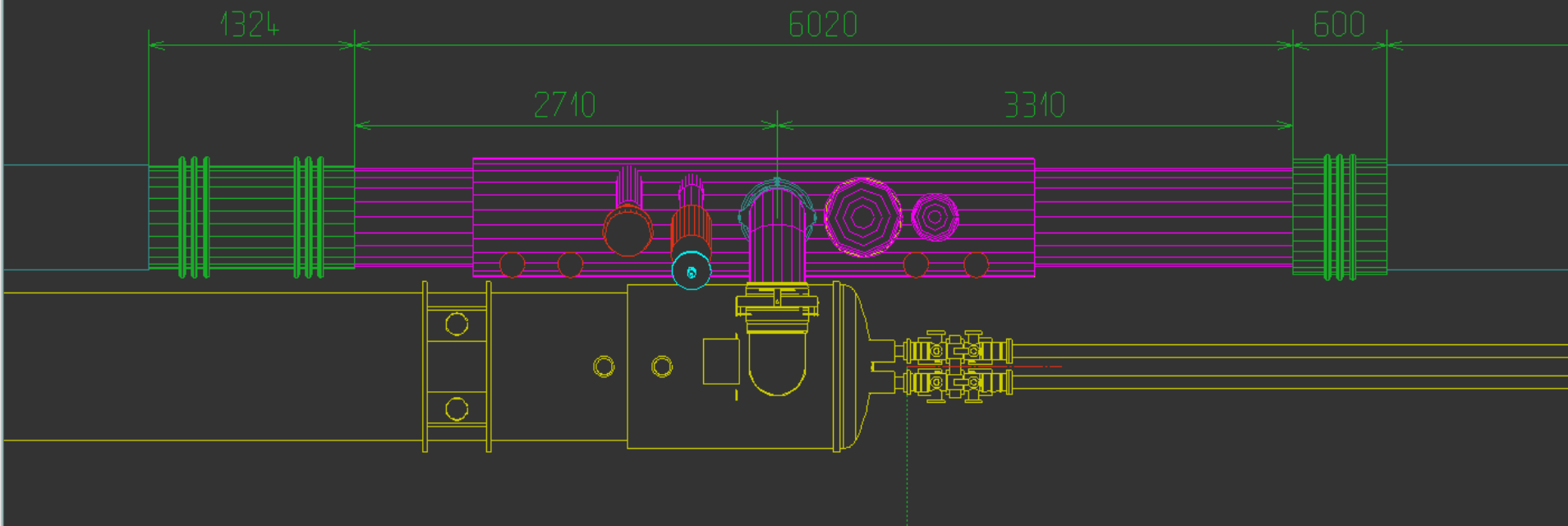
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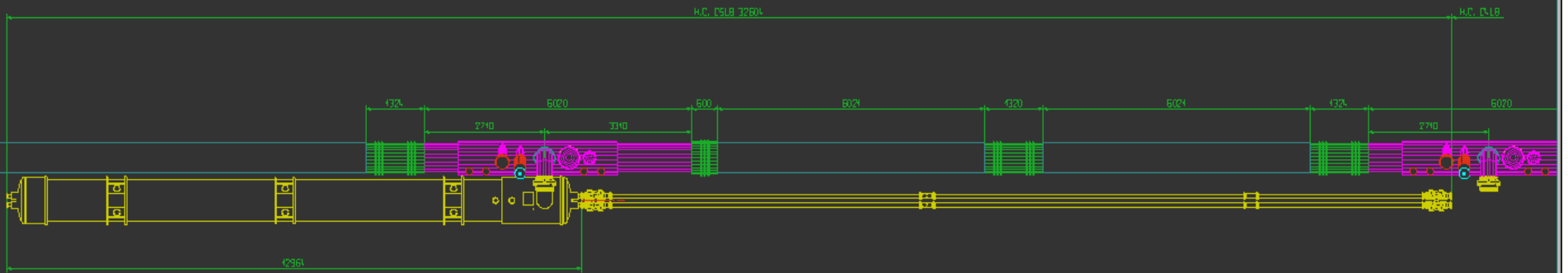
VIEWS

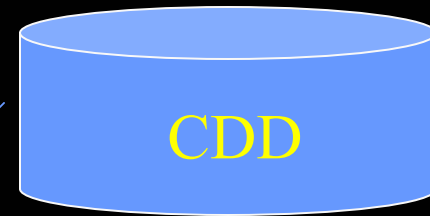
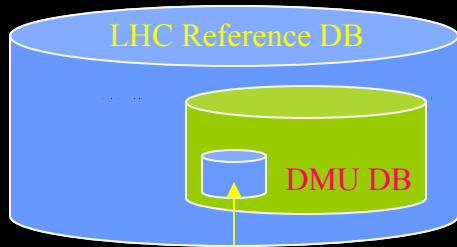








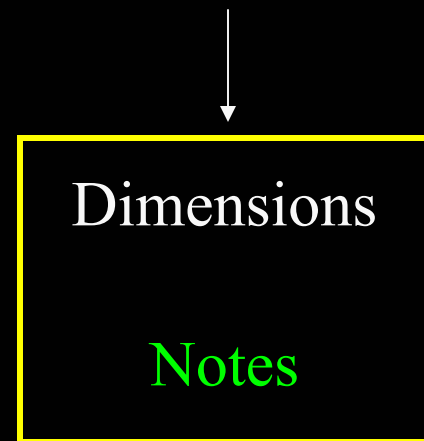
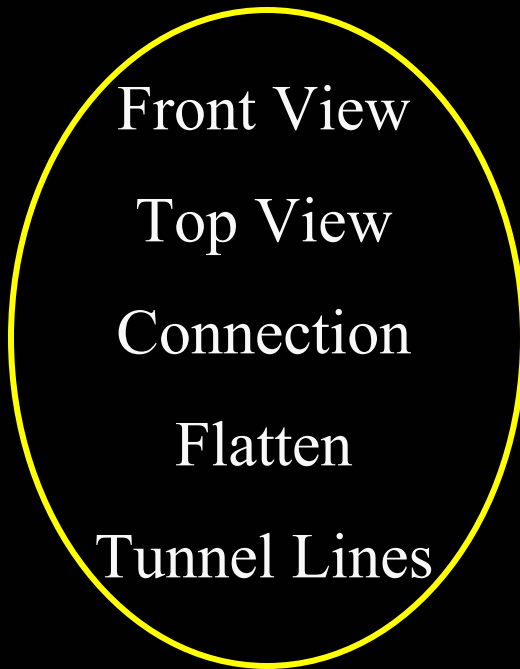


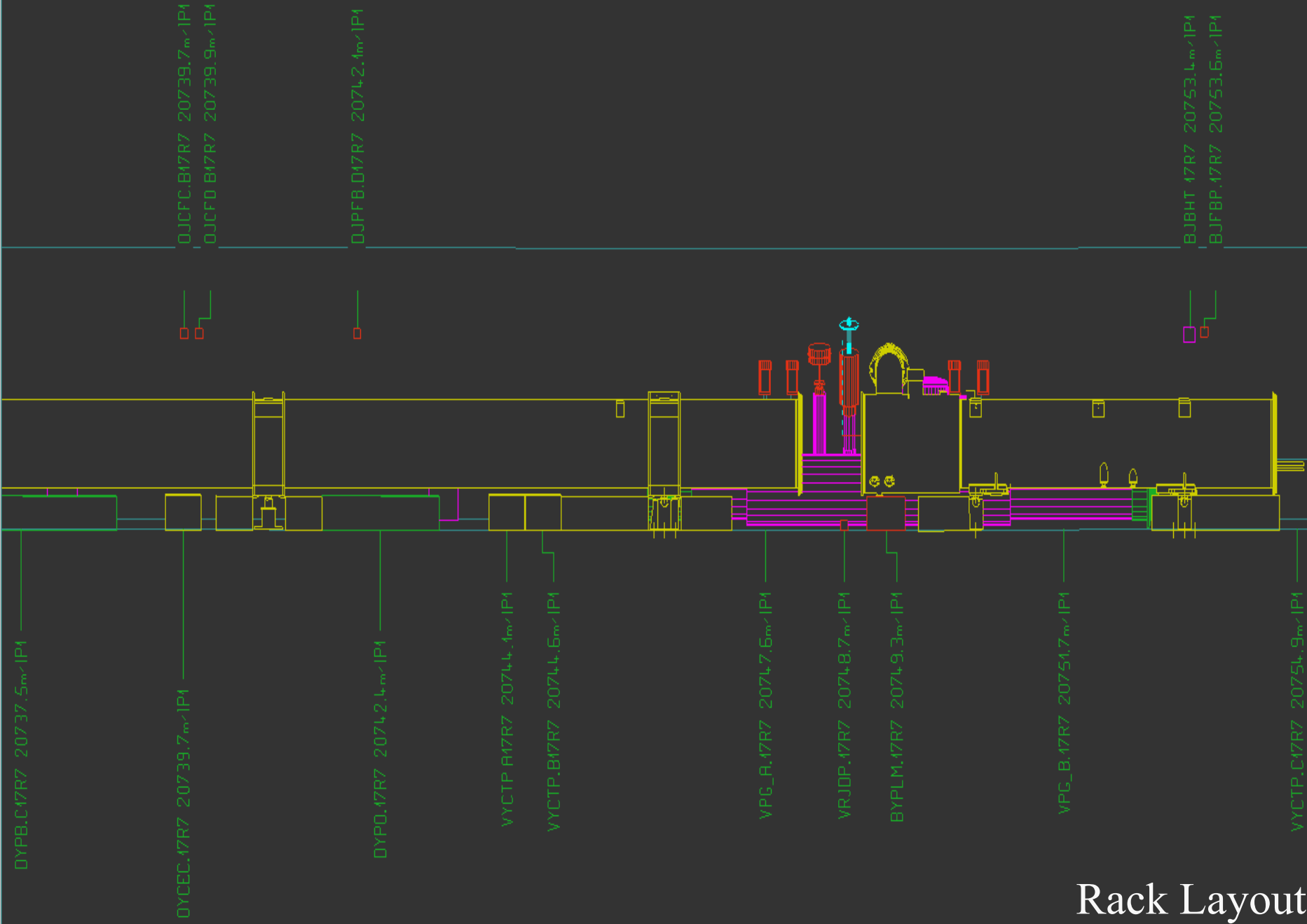


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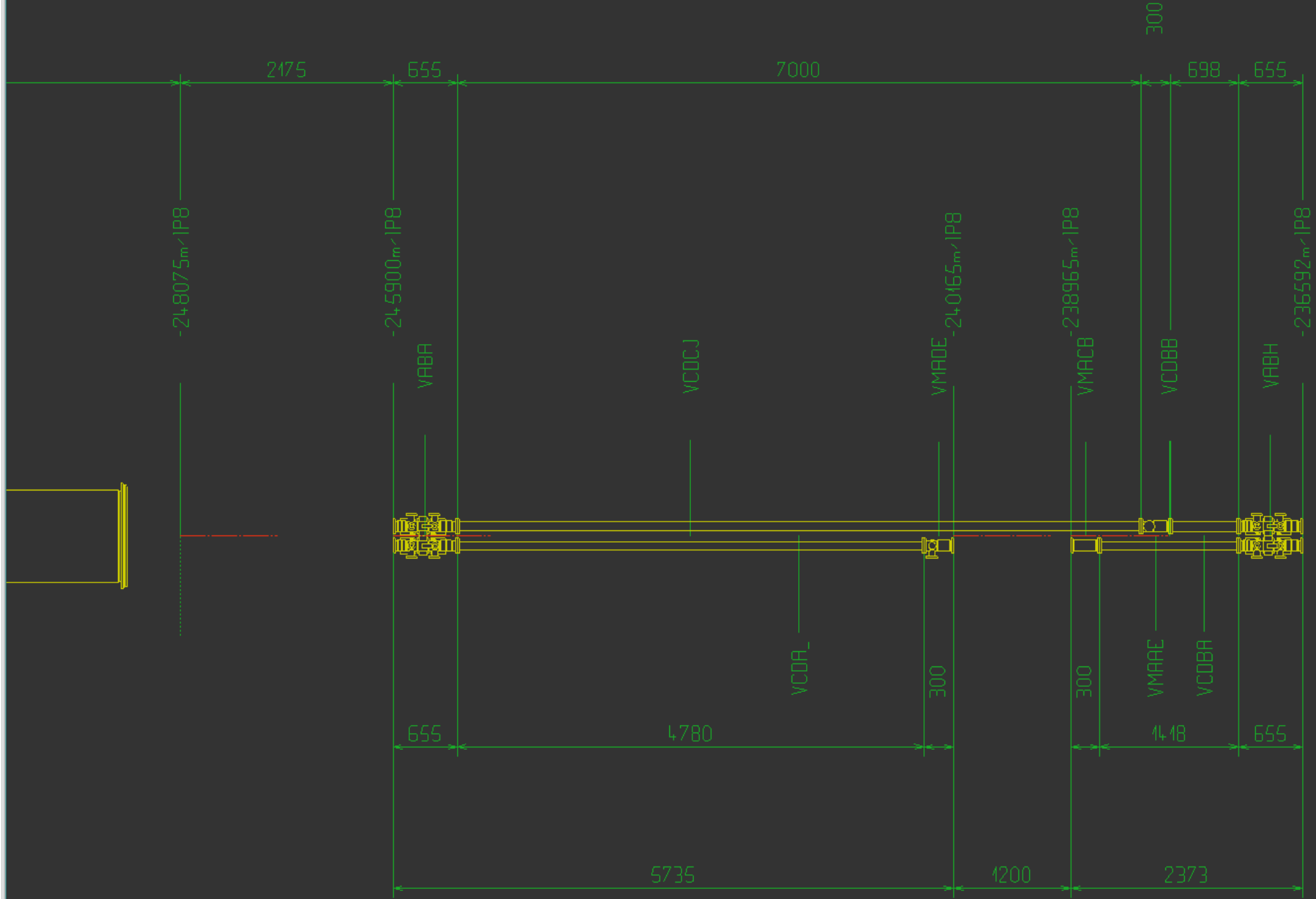
DIMENSIONS

VIEWS

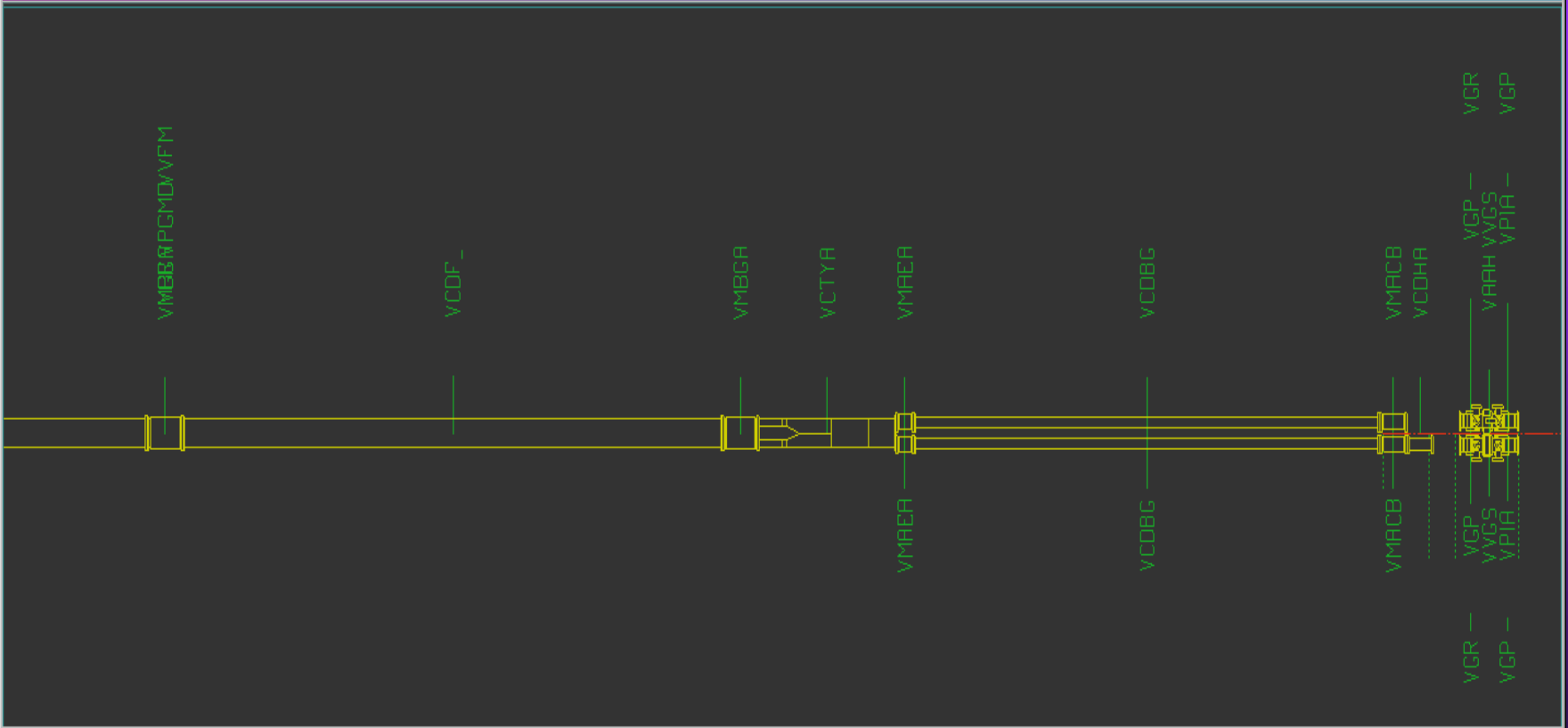




Rack Layout

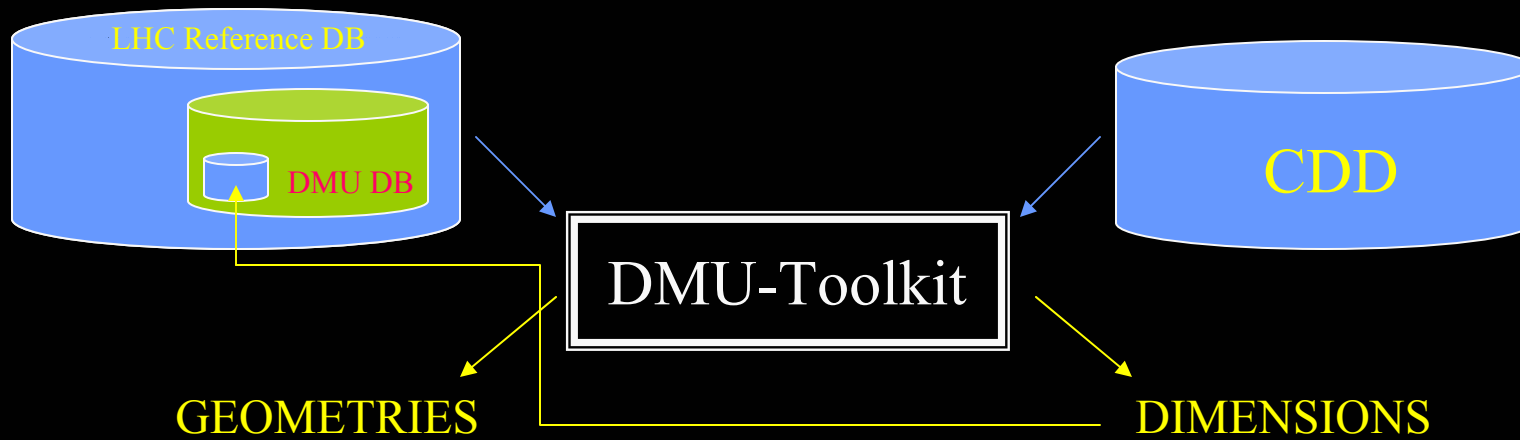


Vacuum



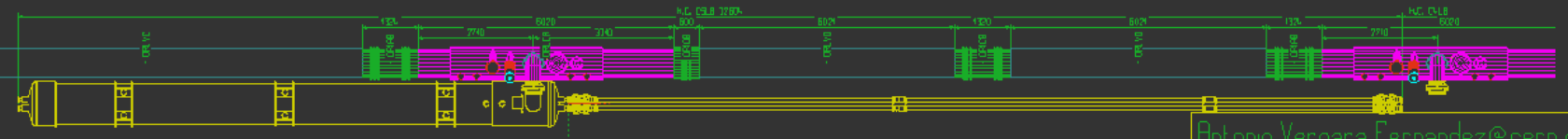
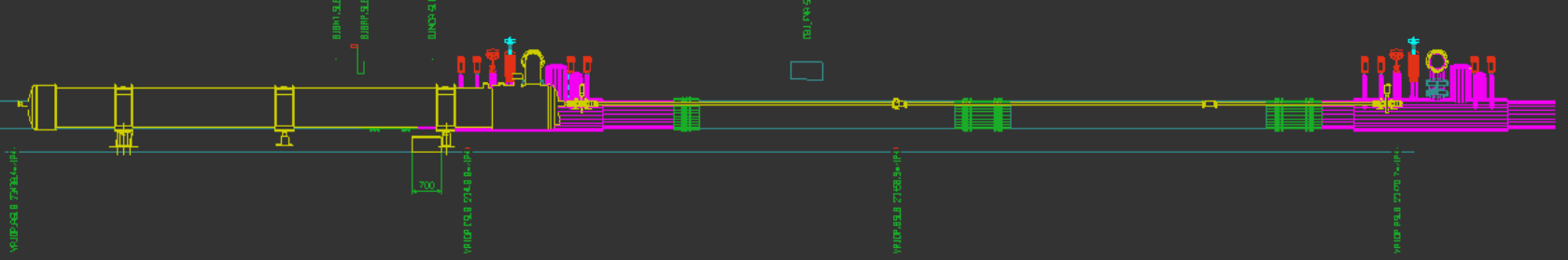
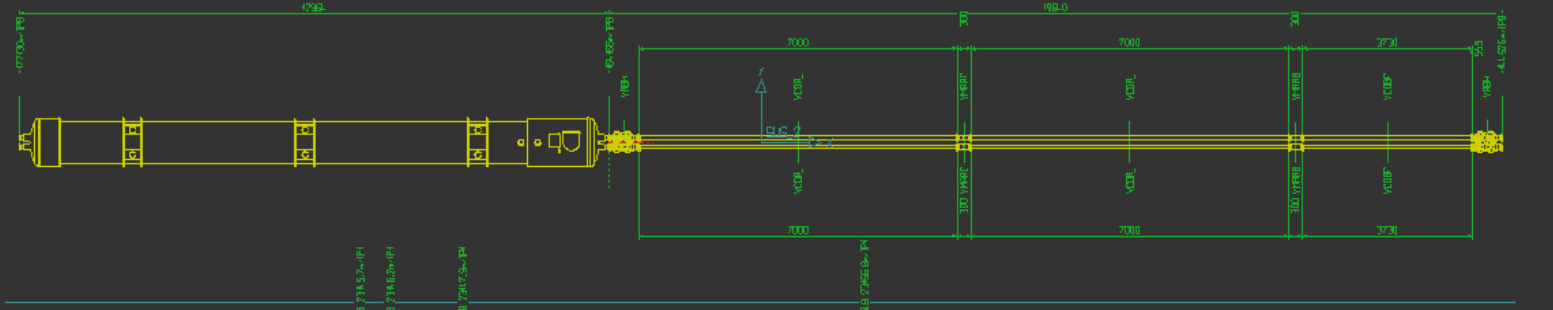
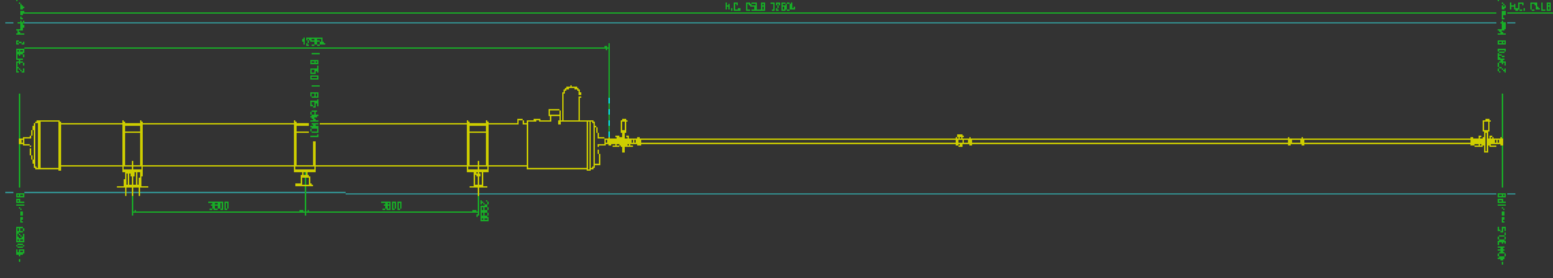
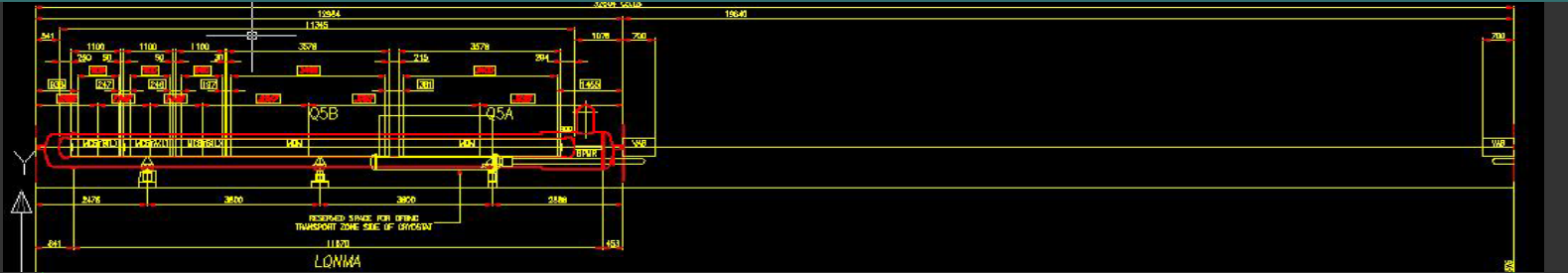
Vacuum Instrumentation

Data Sources



VIEWS





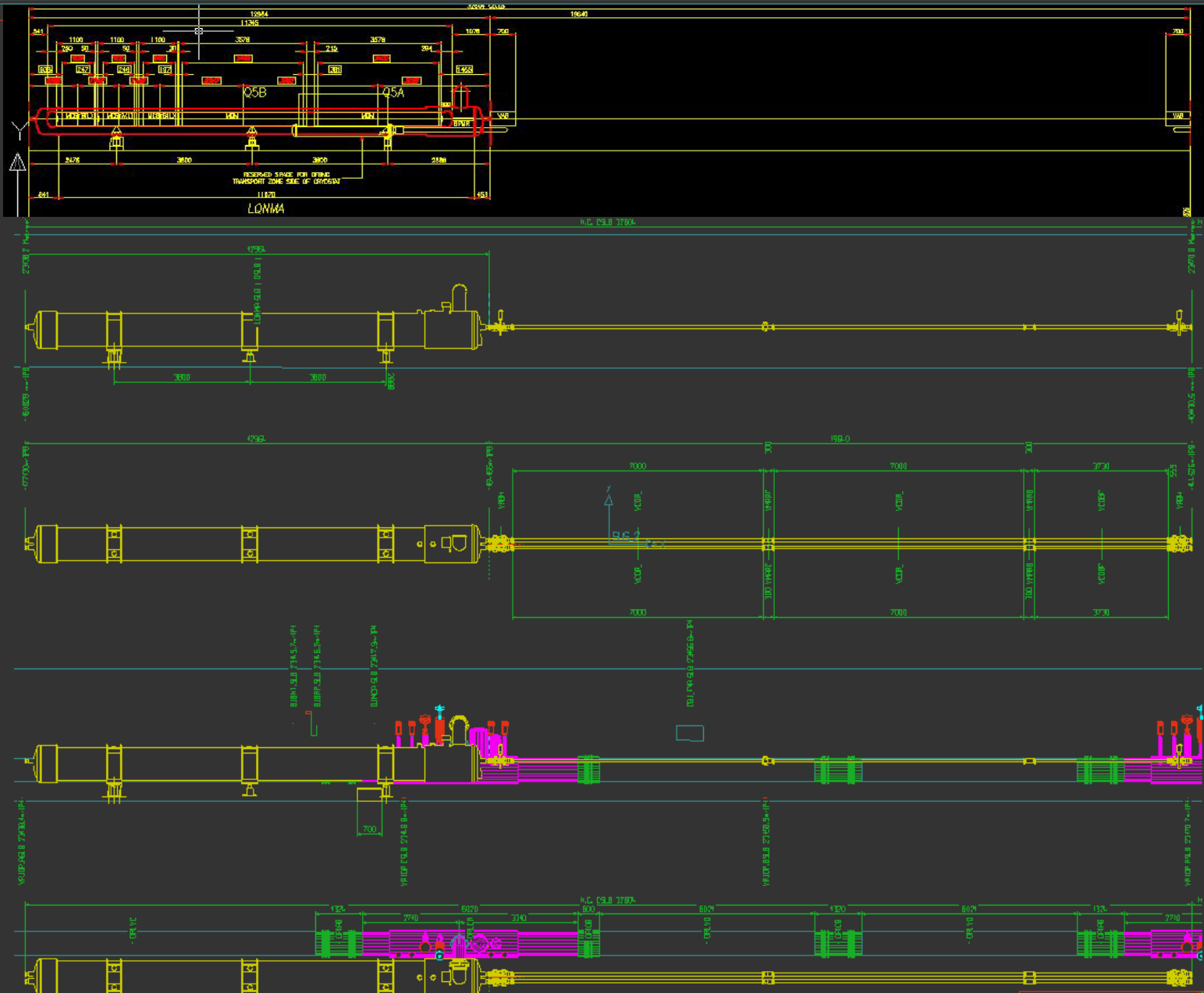
Antonio.Vergara.Fernandez@cern.ch
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Data Sources



DRAWING





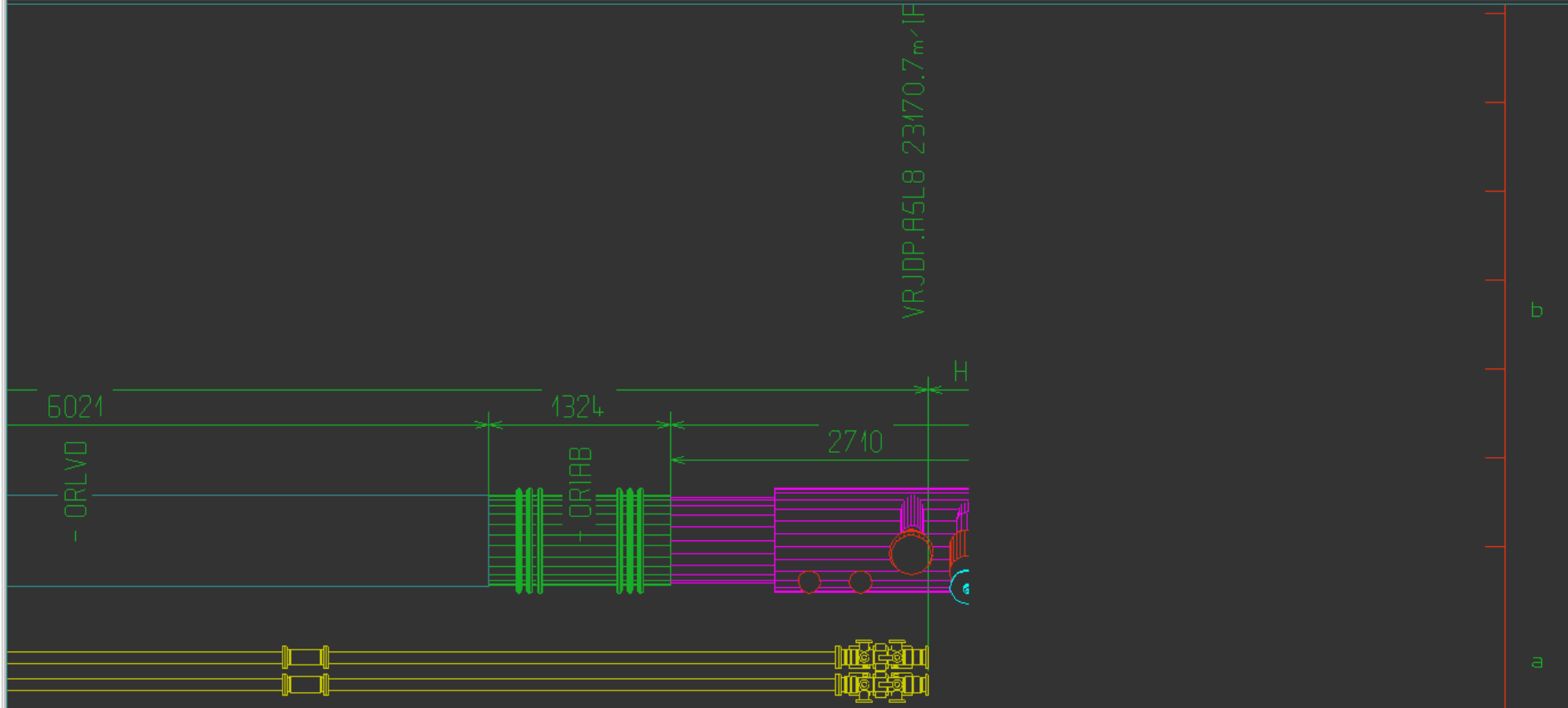
1. Ligne bleue : mur
 2. Ligne orange : cloison
 3. Ligne verte : vitrage
 4. Ligne rouge : porte
 5. Ligne violette : escalier
 6. Ligne noire : mobilier
 7. Ligne grise : équipement technique
 8. Ligne blanche : vide

PROJ	01/01/2010	PROJET
REV	01/01/2010	PROJET
IND	01/01/2010	PROJET

PLANS DE LAYOUT AUTOMATIQUES
 DEMI-CELLULE ESLB
 AUTOMATIC LAYOUT DRAWINGS
 HALF-CELL VIEW ESLB
 NON VALABLE POUR EXECUTION
 NOT VALID FOR EXECUTION

DATE	01/01/2010	PROJET
REV	01/01/2010	PROJET
IND	01/01/2010	PROJET

LCHLJ...0507



b

a

PLANS DE LAYOUT AUTOMATIQUES DEMI_CELLULE C5L8 AUTOMATIC LAYOUT DRAWINGS HALF_CELL VIEW C5L8		ECHELLE SCALE	DES/DRA.	LHCLAYOUT	11-MAR-04
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		.02	RELEASED		
		.02	APPROVED		
		.02	LHCL,LJ____GINSLAY000,L01B,L01B2445PL		
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	NON VALABLE POUR EXECUTION NOT VALID FOR EXECUTION	OAC	- LHCLJ___0501		SIZE IND.
			1	..	



3

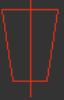
2

1

DESS
DRAW
AC



PROJECTION



ORGANISATION EUROPEENNE POUR
L'A RECHERCHE NUCLEAIRE
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH
GENEVE



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IND.	DATE	NOM/NAME	ZONE	MODIFICATION
B	2003-12-24	LHCLAYOUT		Second Revision
A	2003-12-17	LHCLAYOUT		First Revision

16

15

14

13

12

VRJDP.F6L8 23138



- **Open Question, 2 possible usages:**
 - Drawing Web server accessible by all authorised users.
 - Drawings obtained by users through the Integration Team which is the sole user of the Web server.
- **Conclusions:**
 - A tool for automatic generation of 2D layouts for the LHC has been developed in order to cope with the new needs of the teams in charge of the collider installation.
 - Server should be operational by summer 2004.

Many thanks to...

- Yvon Muttoni
- Eric Van Uytvinck
- Roger Valbuena
- And the rest of IC-DC Section...
 - Pascal Le Roux
 - Antonio Jimeno-Yepes

... thank you