Examples of cryogenic equipment installed by AT/ECR-ME

O. PIROTTE

AT-ECR-ME SECTION MANDATE

- Support and expertise in mechanical engineering
- Design & integration office (ACAD, Euclid, CATIA...)
- Manufacturing facilities (workshops, welders, ...), Management of ECR mechanical workshops
- Design, Fabrication and Supervision for ongoing projects of cryogenic equipment's fabrication and installation
- Management (incl. specifications) of contracts for IS and ECR projects
- Technical support for the cryogenic installations in operation
- General support in cryogenics

Main projects and installations

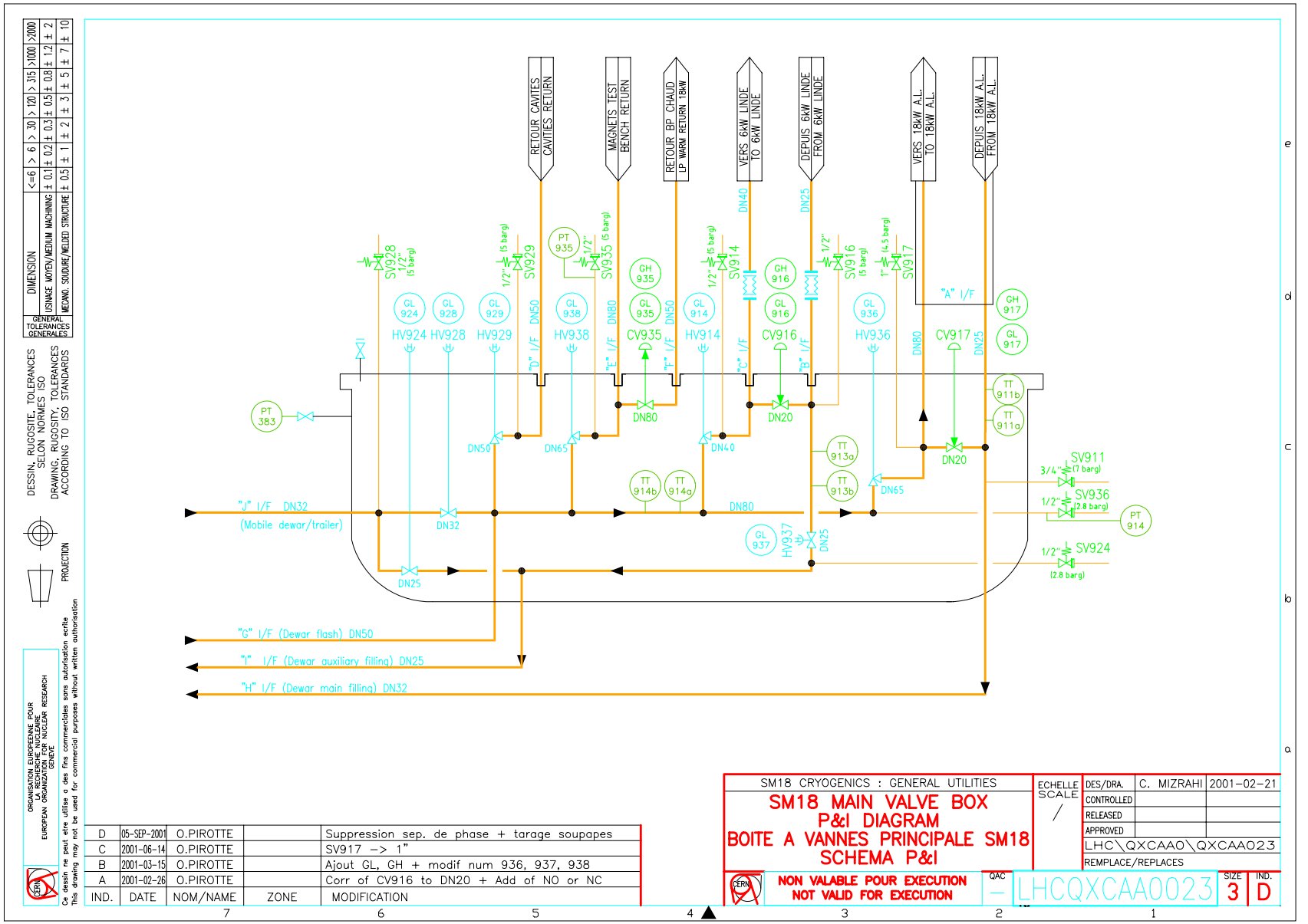
- Design tools management : CDD, EDMS
- Many designs, manufacturing and installations of cryogenic equipments in various locations :
  - LHC test areas : SM18, Hall 163, Block 4, SPS BA4
  - Experiment test areas : Hall 180, EHN1, EHN2, P1, P5, P8
  - Refurbishment of old installations in various build.
  - Assistance to other groups/divisions (SC, PH)
- Experiments : ASACUSA, GReC, CAST, COMPASS, CMS, ATLAS, COLDEX, + collaborations with the Cryolab (CLTF, Beam Screen TF, ...)
- (Emergency) interventions for operation (incl. other groups/divisions)

SM18 Cryo Area

6kW Al Plant moving and refurbishing for ATLAS.

Design and installation of new Valve Boxes

SM18 Cryo Area



GENERAL TOLERANCES GENERALES	DIMENSION	<=6	> 6	> 30	> 120	> 315	>1000	>2000
	USINAGE MOYEN/MEDIUM MACHINING	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2
	MECANO. SOUDURE/WELDED STRUCTURE	± 0.5	± 1	± 2	± 3	± 5	± 7	± 10

DESSIN, RUGOSITE, TOLERANCES SELON NORMES ISO
DRAWING, RUGOSITY, TOLERANCES ACCORDING TO ISO STANDARDS

PROJECTION

IND.	DATE	NOM/NAME	ZONE	MODIFICATION
D	05-SEP-2001	O.PIROTTE		Suppression sep. de phase + tarage soupapes
C	2001-06-14	O.PIROTTE		SV917 -> 1"
B	2001-03-15	O.PIROTTE		Ajout GL, GH + modif num 936, 937, 938
A	2001-02-26	O.PIROTTE		Corr of CV916 to DN20 + Add of NO or NC

SM18 CRYOGENICS : GENERAL UTILITIES

SM18 MAIN VALVE BOX P&I DIAGRAM BOITE A VANNES PRINCIPALE SM18 SCHEMA P&I

NON VALABLE POUR EXECUTION
NOT VALID FOR EXECUTION

ECHELLE SCALE /

DES/DRA.	C. MIZRAHI	2001-02-21
CONTROLLED		
RELEASED		
APPROVED		

LHC\QXCAAO\QXCAA023

REMPLACE/REPLACES

QAC –

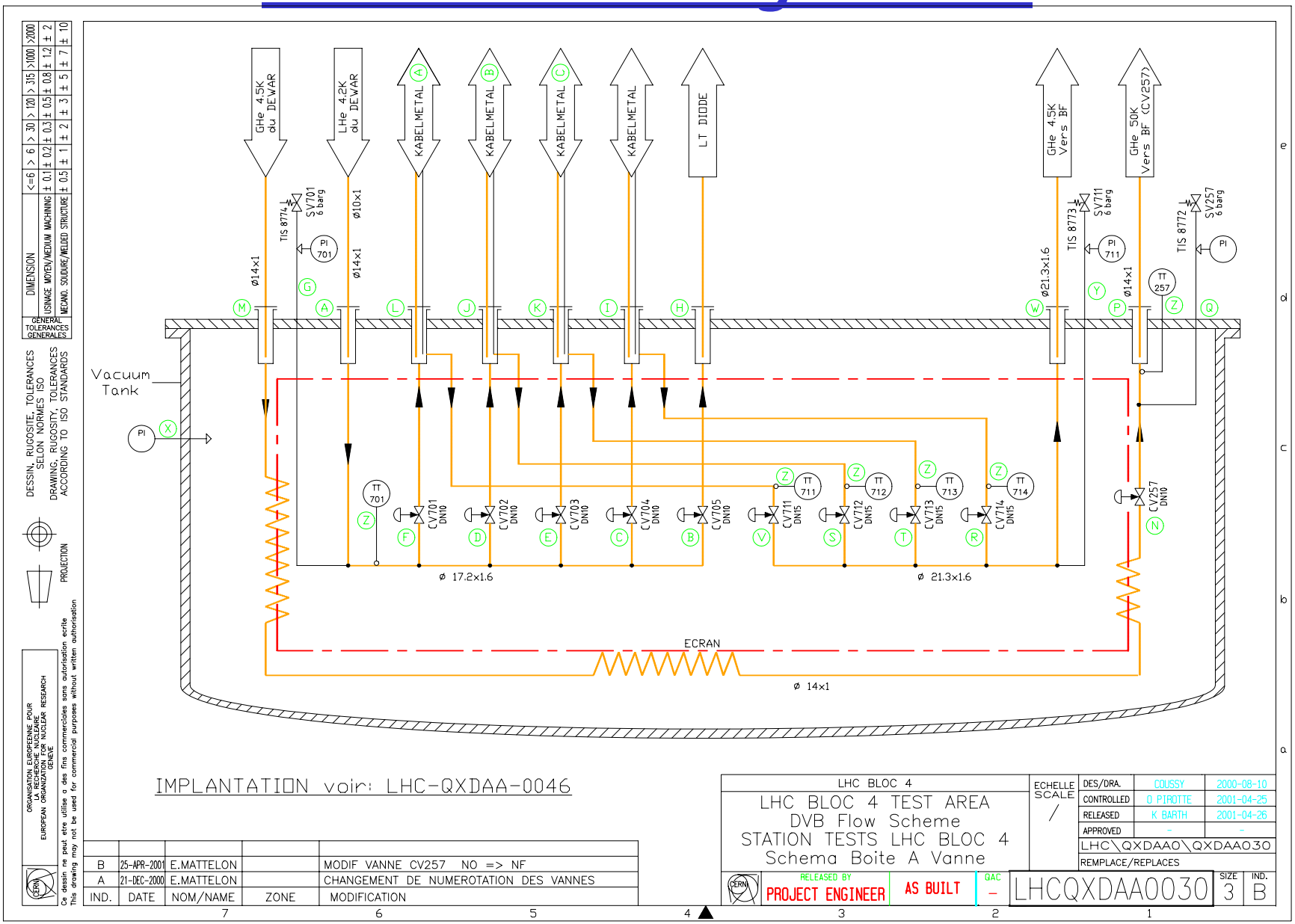
LHCQXCAA0023

SIZE 3 | IND. D

LHC BLOC 4 Test facility

New Valve Box installation
during a very short shutdown

LHC Block 4 Magnets TF



IMPLANTATION voir: LHC-QXDAA-0046

IND.	DATE	NOM/NAME	ZONE	MODIFICATION
B	25-APR-2001	E.MATTELON		MODIF VANNE CV257 NO => NF
A	21-DEC-2000	E.MATTELON		CHANGEMENT DE NUMEROTATION DES VANNES

LHC BLOC 4

LHC BLOC 4 TEST AREA
DVB Flow Scheme
STATION TESTS LHC BLOC 4
Schema Boite A Vanne

ECHELLE SCALE /

DES/DRA.	COUSSY	2000-08-10
CONTROLLED	O PIROTTE	2001-04-25
RELEASED	K BARTH	2001-04-26
APPROVED	–	–

LHC\QXDAA0\QXDAA030
REMPLACE/REPLACES

RELEASED BY PROJECT ENGINEER | AS BUILT | QAC –

LHCQXDAA0030 | SIZE 3 | IND. B

GENERAL TOLERANCES GENERALES	<=6	> 6	> 30	> 120	> 315	>1000	>2000
USINAGE MOYEN/MEDIUM MACHINING	± 0.1	± 0.2	± 0.3	± 0.5	± 0.8	± 1.2	± 2
MECANO. SOUDURE/WELDED STRUCTURE	± 0.5	± 1	± 2	± 3	± 5	± 7	± 10

DESSIN, RUGOSITE, TOLERANCES SELON NORMES ISO
DRAWING, RUGOSITY, TOLERANCES ACCORDING TO ISO STANDARDS

PROJECTION

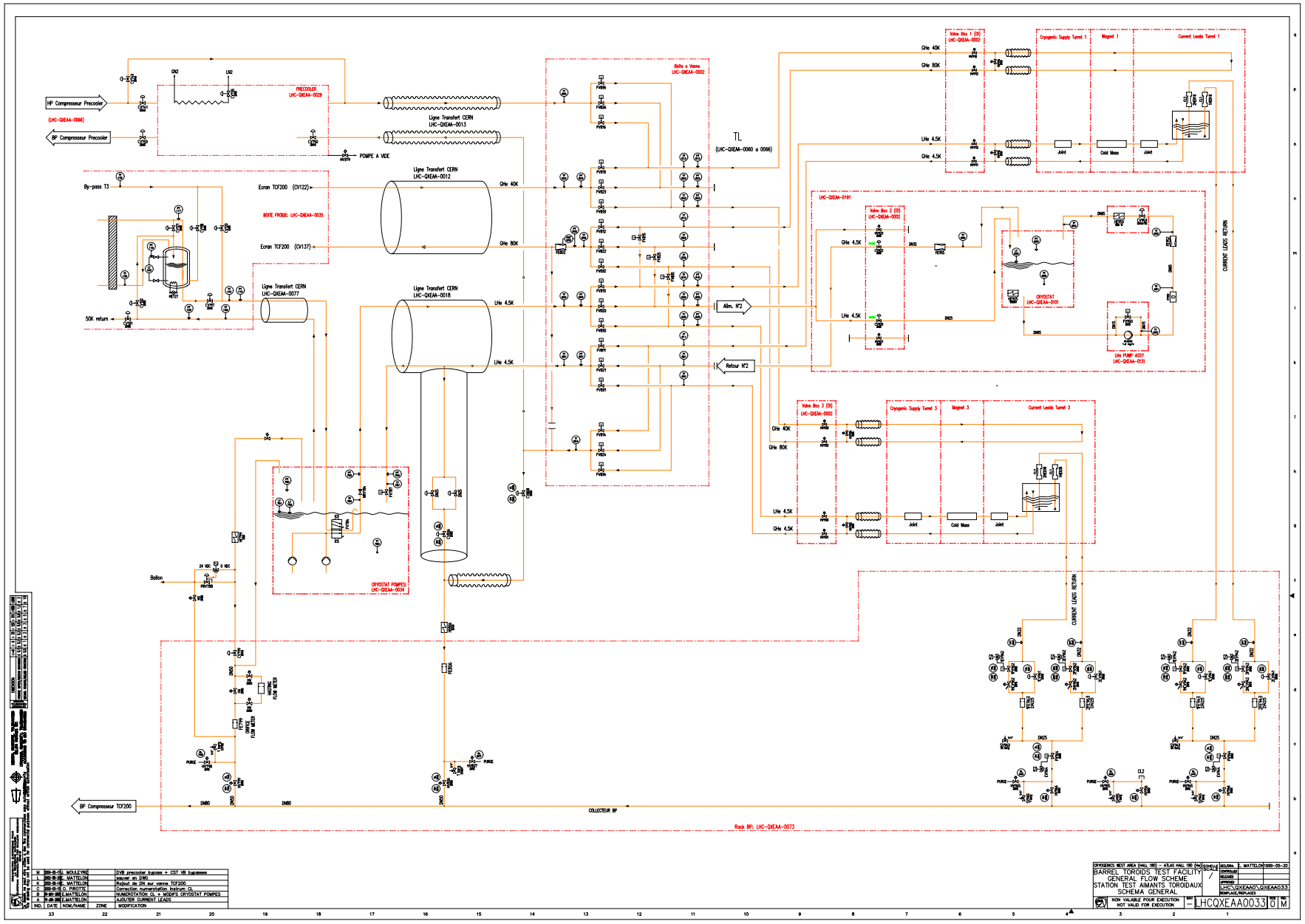
LHe Discharge Station

ATLAS Hall180 : BT Cryo Test Facility

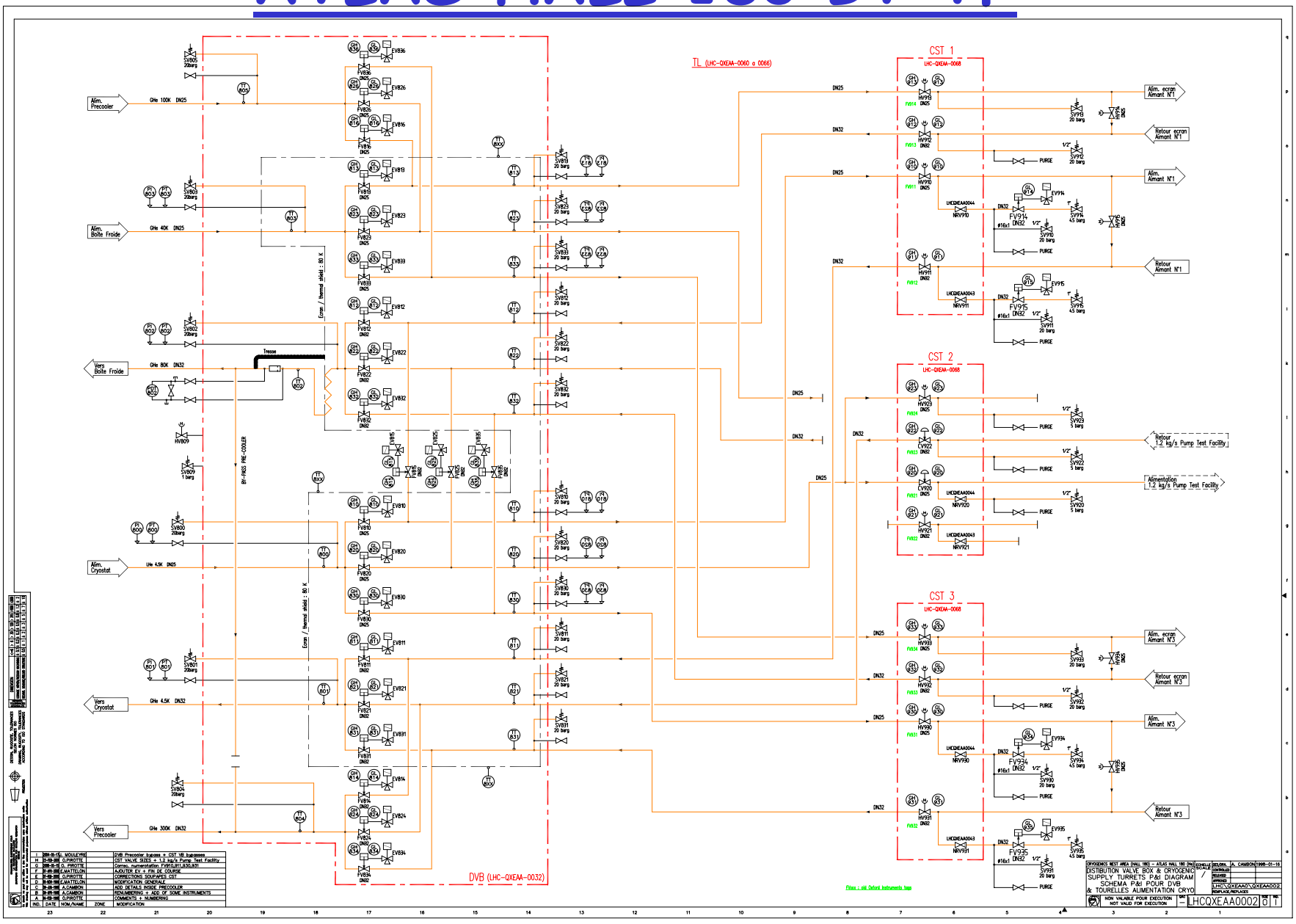
Precooler, OI VB + TLs

TCF200 + Pump Cryostat

ATLAS HALL 180 BT TF

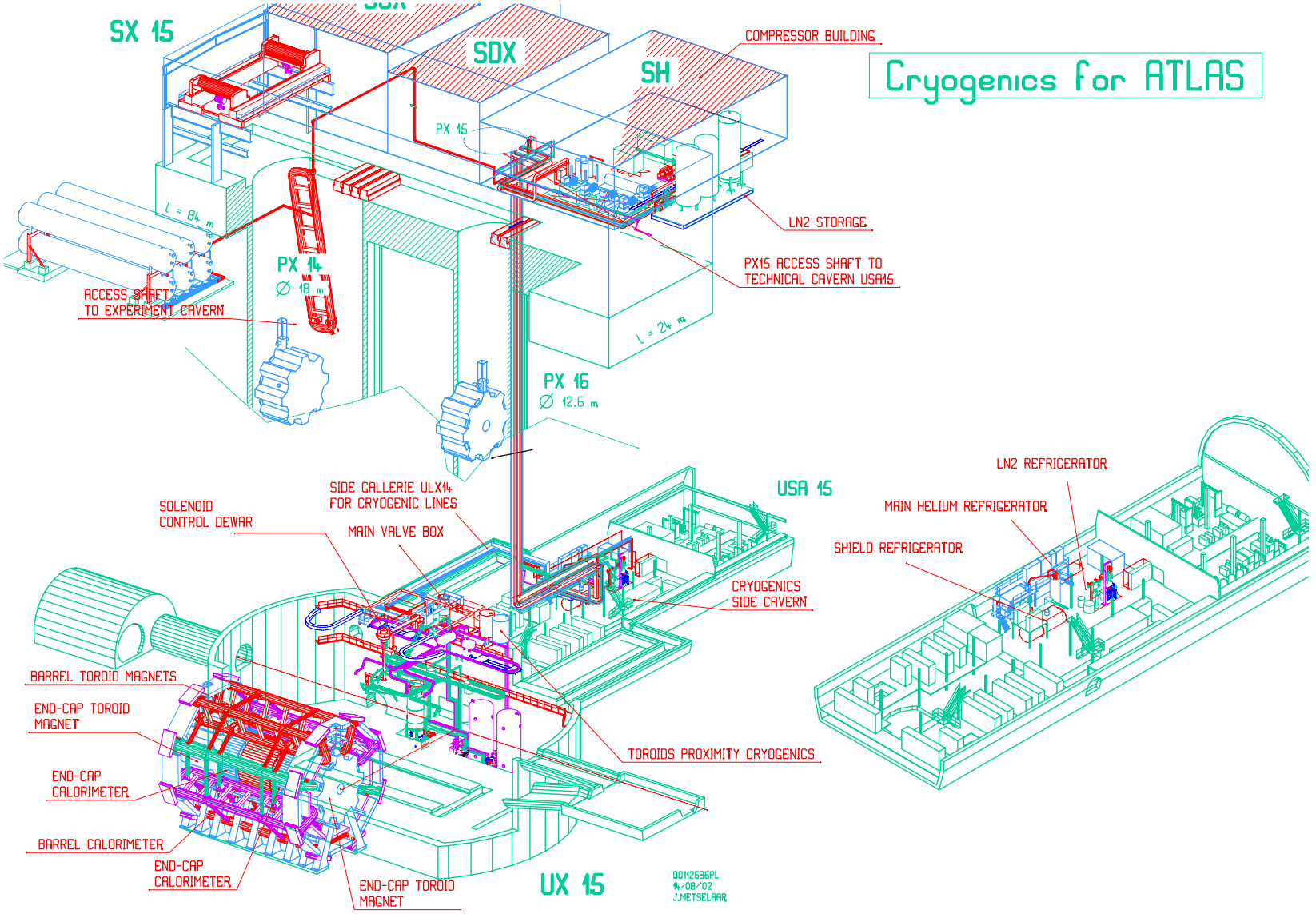


ATLAS HALL 180 BT TF

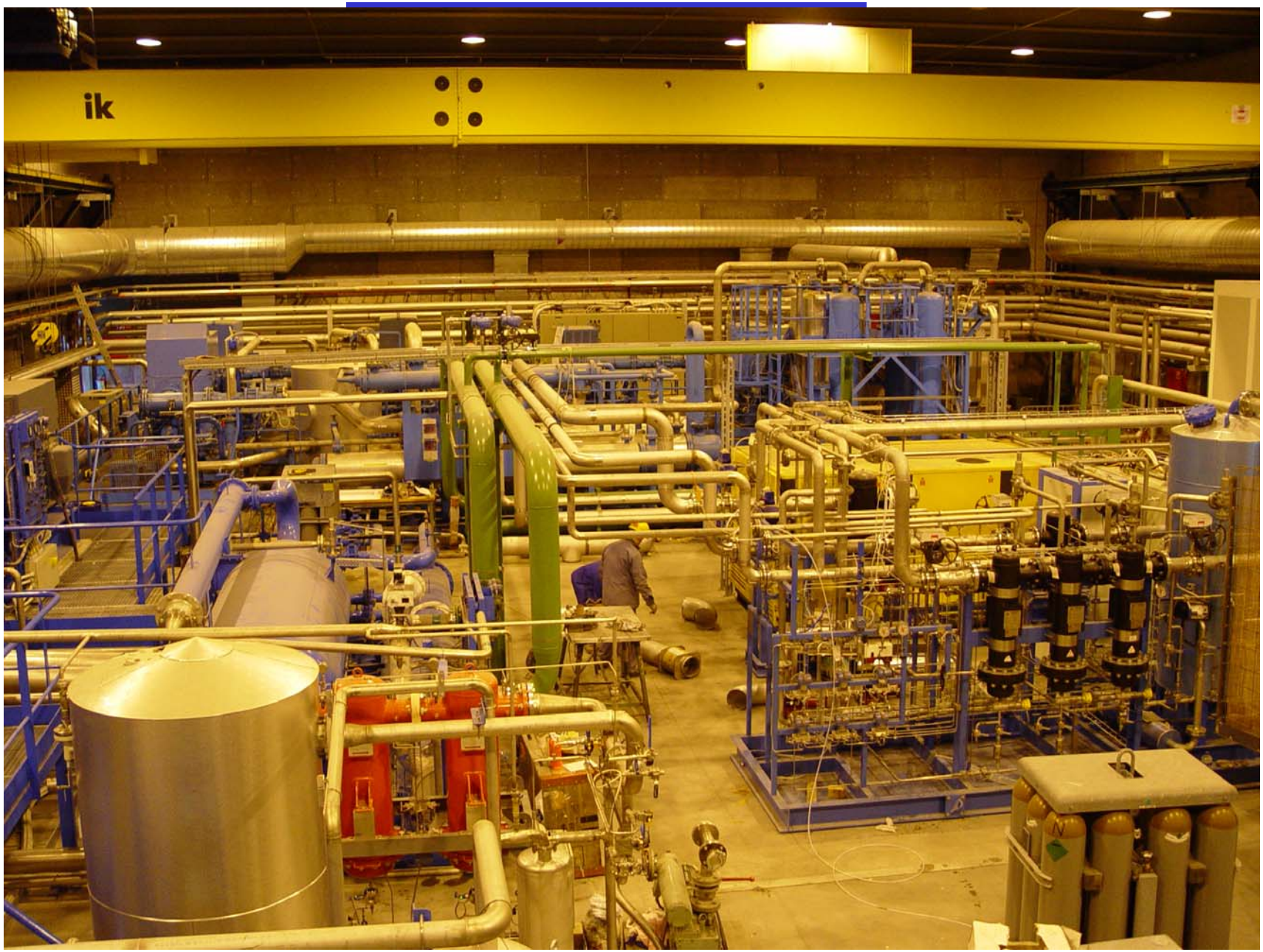


ATLAS Hall 180 : LAr TF

ATLAS : POINT 1



ATLAS POINT 1



ATLAS POINT 1

ATLAS POINT 1

ATLAS POINT 1