DESY testbeam preparations

Fred Hartjes

NIKHEF

Nikhef/Bonn LepCol meeting
October 7, 2019

Constraints on the organization of the DESY testbeam

- Nov 18: start magnet cooling
  - => Final decision on having the December testbeam
  - **Will we run with one or two quads if the DAQ or the LV supplies are not running at that date??**
  - Start mockup setup at Nikhef

- Installation at DESY cannot start later than on Dec 2

- People are not allowed to work alone in the DESY testbeam area or hut

DESY TEST BEAM.

DESY Test Beam Schedule 2019 - Version 8 02/08/2019

Ralf Diener, Norbert Meyners, Marcel Stanitzki - DESY Test Beam Coordinators

	Week		TB21		TB22		TB24/1		TB24	
				DATURA		DURANTA	PCMAG	Telescope in PCMAG		AZALEA
7-Oct-19	41									
14-Oct-19	42		BL4S	X	SHiP-SplitCAL				ATLAS-ITk-TJCMOS	
21-Oct-19	43		BL4S	X	SHiP-SciFi				EDIT2020 Preparations	X
28-Oct-19	44		CMS-Pixel-Phase2	X	SHiP-SciFi+SHiP-Emulsion				Ship-SBT	
4-Nov-19	45		CMS-Pixel-Phase2	X	ATLAS-HGTD	X			LHCb-ECAL	X
11-Nov-19	46		FCAL	X	ATLAS-HGTD	X			LHCb-ECAL	X
18-Nov-19	47				Setup Time					
25-Nov-19	48		CMS Outer Tracker	X	ATLAS-ITk-Strips	X			ATLAS-ITk-Pixel	X
2-Dec-19	49		CMS Outer Tracker	X	ATLAS-ITk-Strips	X			ATLAS-ITk-Pixel	X
9-Dec-19	50		ELIOT		CMS-Pixel-Phase2	X	LCTPC-Pix		Mu3e	X
16-Dec-19	51	Beam till 20/12 0800	ELIOT		CMS-Pixel-Phase2	X			CLIC PIXEL	X
23-Dec-19	52		Shutdown							
30-Dec-19	1									

- **Safety course** is only held each Monday morning.
- We cannot start **installation** or have **access** to the hall before that.
- => We (Fred and Kees) have to be at DESY on Dec 2.

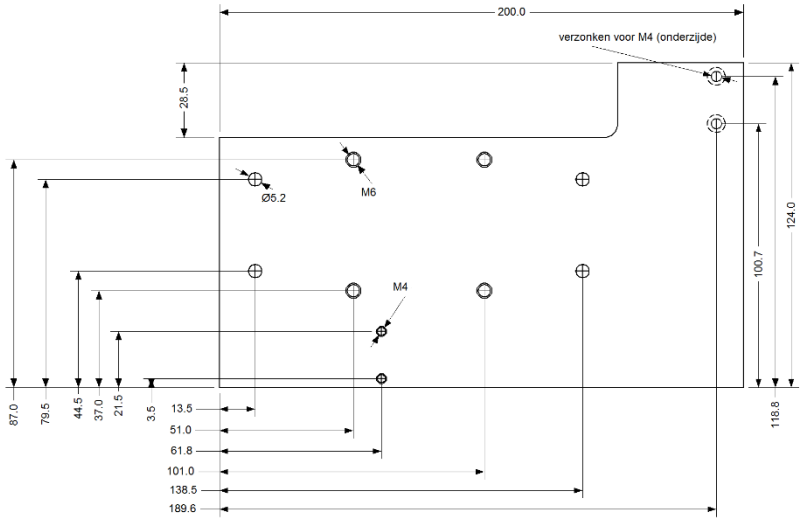
Time schedule DESY testbeam

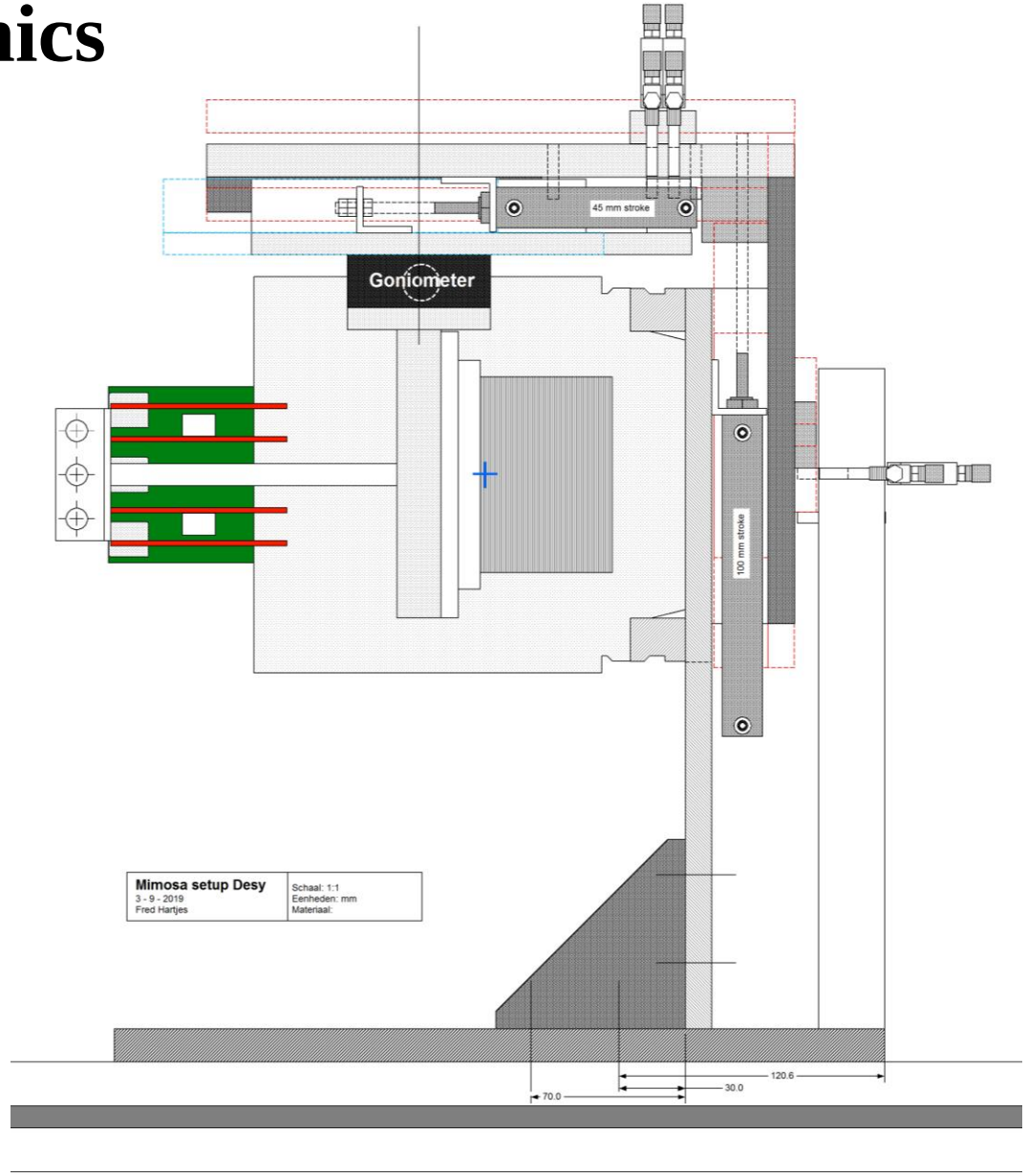
Proceeding with the testbeam or not?

7-okt-19	14-okt-19	21-okt-19	28-okt-19	4-nov-19	11-nov-19	18-nov-19	25-nov-19	2-dec-19	9-dec-19	16-dec-19
mechanical setup						mockup at Nikhef		installation	running at	Dismantling.
DAQ of 8 quads						magnet filling		at DESY	DESY	Going home
power board with non-magnetic LV supplies								safety	safety	Nikhef
								course	course	jamboree
								Fred, Kees	others	

Setup mechanics

- Design finished
  - 13 production drawings
- In vertical direction (X coordinate) 3 positions
  - X = 0 – 20; 20 – 40; 40 – 60 mm
- Horizontal (Z coordinate) 4 positions
  - Z = 0 – 10; 10 – 20; 20 – 30; 30 – 40 mm
- Reproducibility ~ 30 μm expected
- All pneumatically controlled





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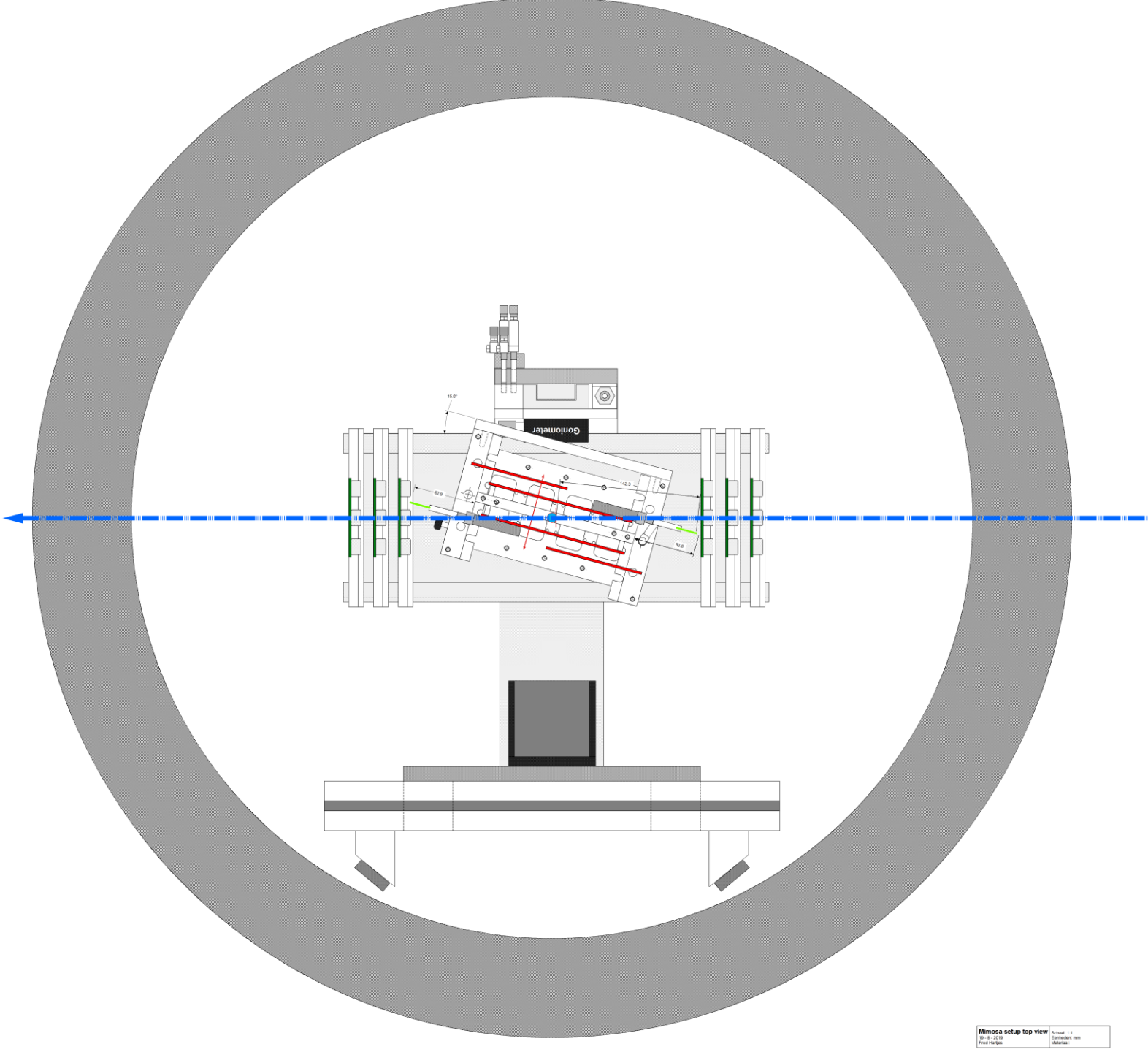
Setup mechanics

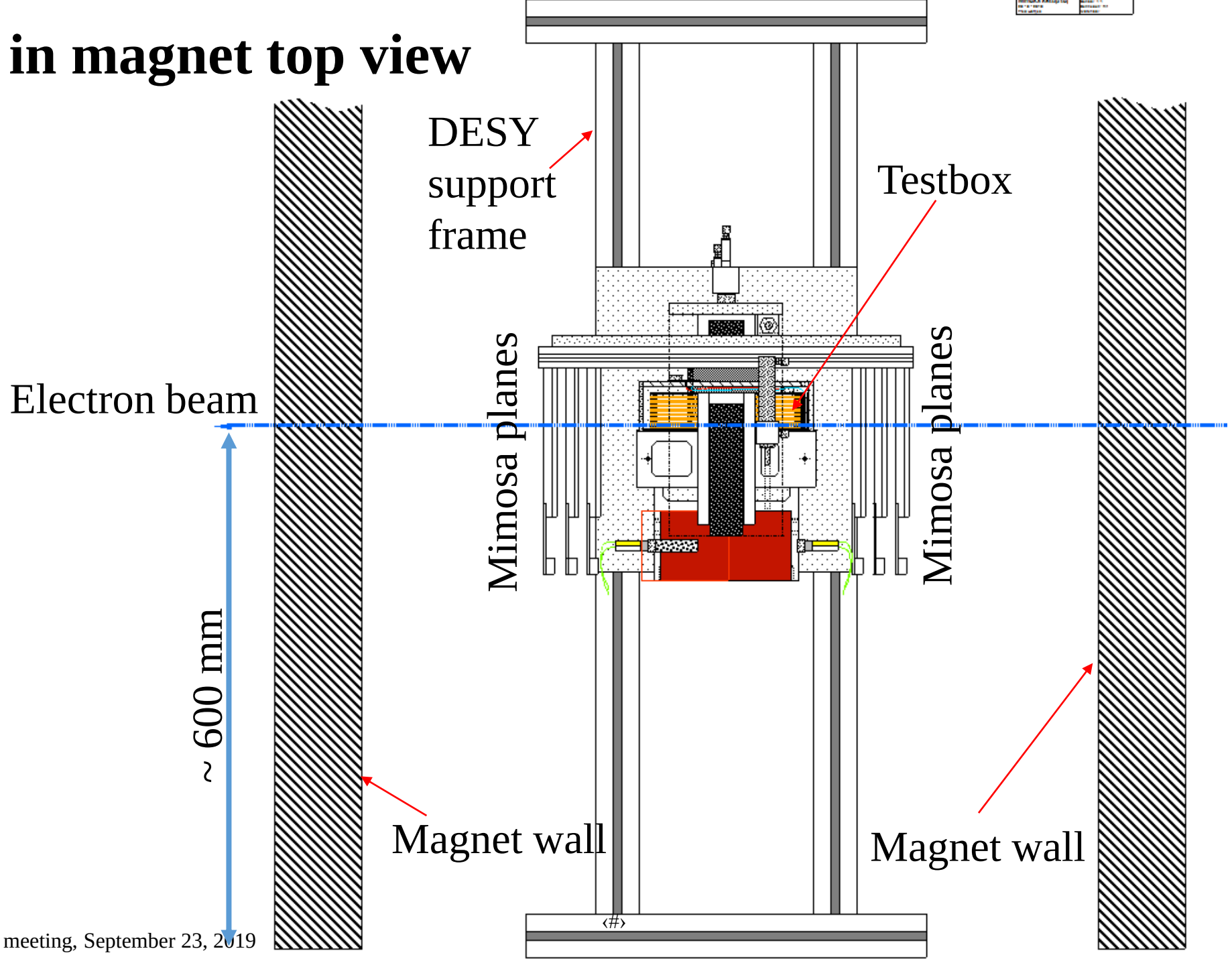
- Production of mechanical components started (Oscar)
  - Planned to be finished end October
- Commercial components
  - All ordered
  - Mostly received
  - Remaining 3 items expected in October
- DCS PC Levaard
  - Solid state disk has arrived
  - Will be installed around October 22
  - One-to-one copy of existing disk



Reference

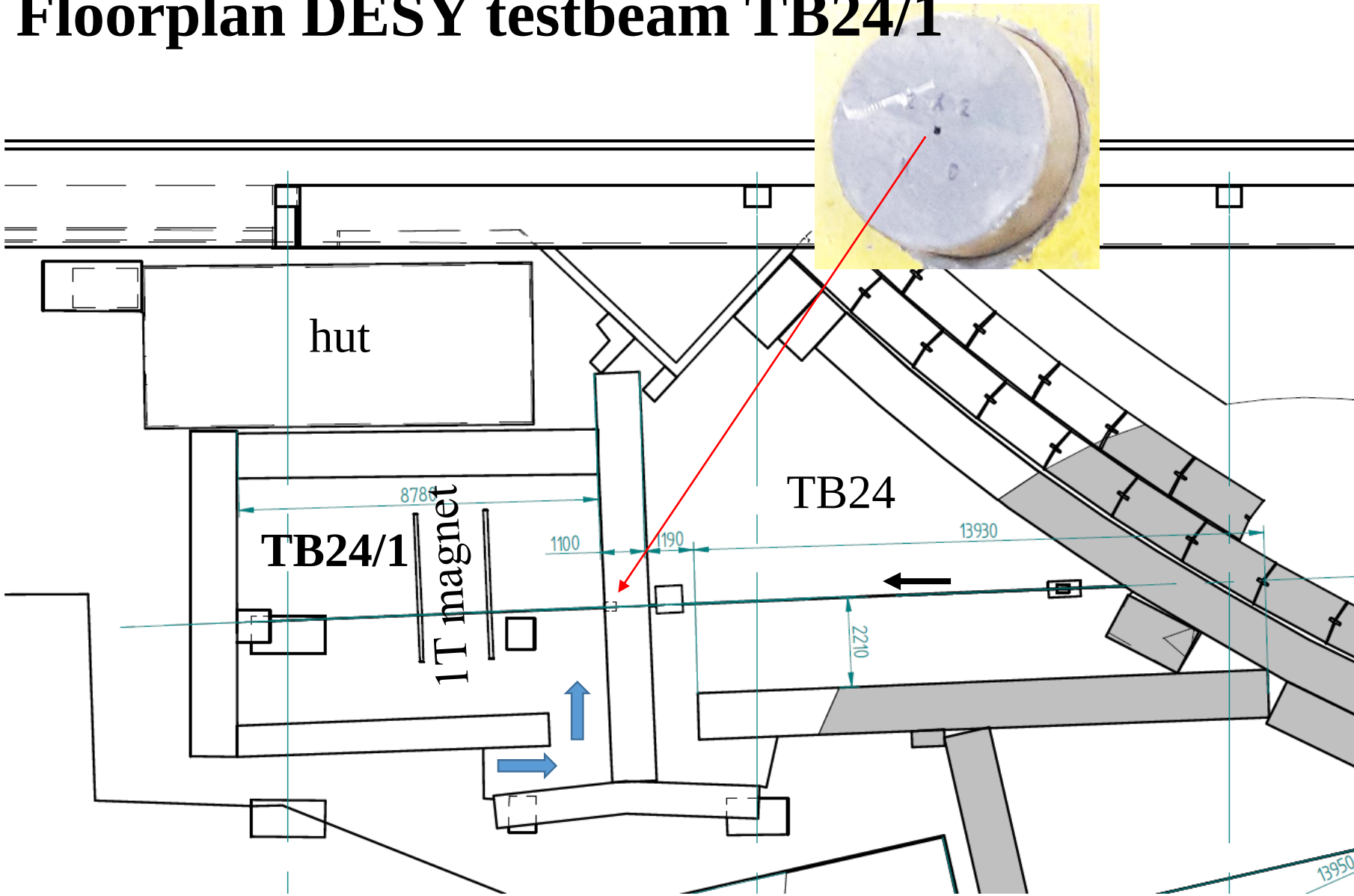
DESY testbeam Hall 2

Testbox in magnet top view



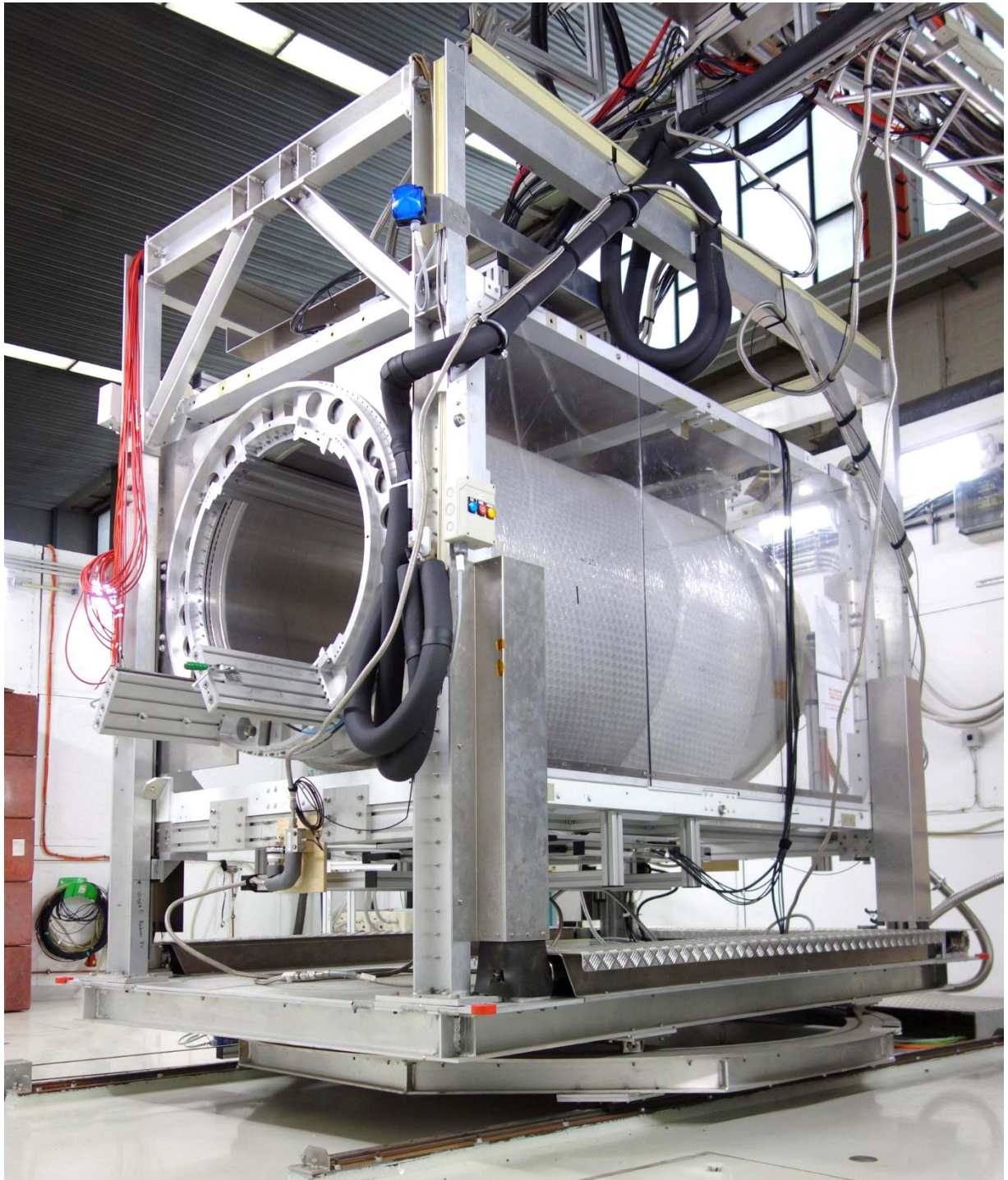
Floorplan DESY testbeam TB24/1

- In December we may have a rather low energy (~ 3 GeV)
- Rate depending on the applied collimator
- Maximum 5 – 6 kHz
- Beam height is 169.5 cm wrt the ground floor



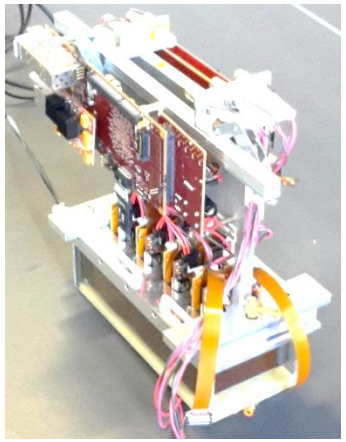
Solenoid magnet in TB24/1

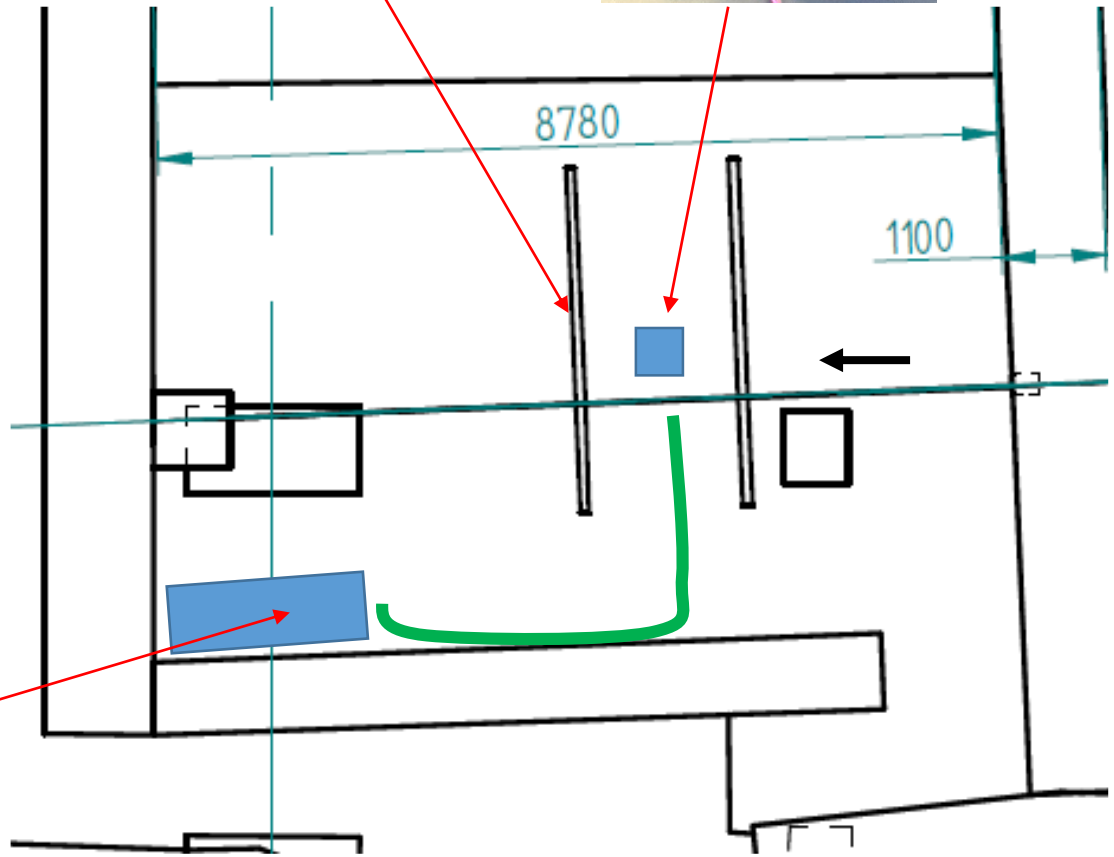
- Remotely movable vertically and sideward (X and Z)
- Super conducting
  - => no running power needed
  - But how much time does it take to cool it down?
- 1T magnetic field horizontally
- Radiation length magnet wall: 20%
- Inner diameter: 85 cm



Floorplan DESY testbeam TB24/1

- Leak tray with all services on wooden table
- DCS PC Levaard also on that table
- **Cable length between leak tray and testbox: ~ 8 m**
- We cannot lay our own cables between the hut and our area
  - Only possible when all beams are off
  - We have to use available cables/tubing





Mounting the testbox in the magnet

- Our setup will be mounted on a frame on rails
- Detector has to be installed at ~ 60 cm from the magnet entrance