

Test Beam Setup

LCTPC Collaboration Meeting, March 27. 2012
R. Diener, DESY



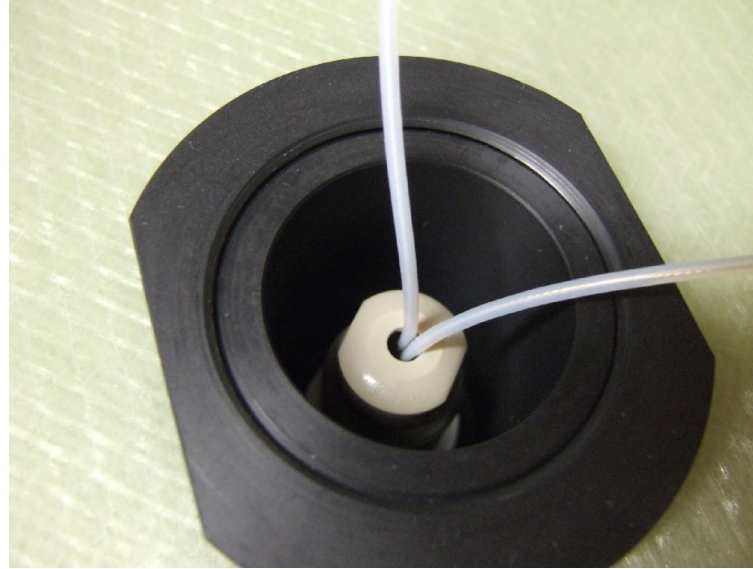
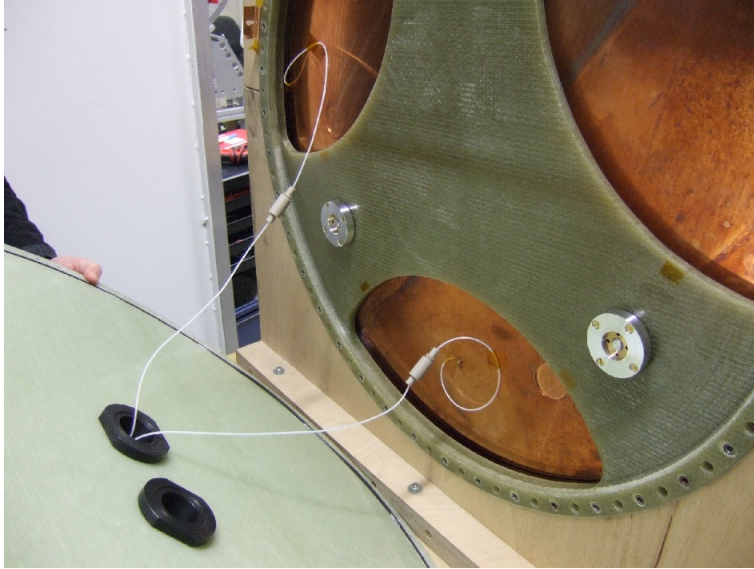
- **2008:**
 - Nov-Dec Micromegas module w/ resistive anode (T2K electronics)
- **2009:**
 - Feb-Apr 3 Asian GEM Modules w/o Gating GEM (3,000ch ALTRO electronics)
 - Apr TDC electronics with an Asian GEM Module
 - Apr-May Maintenance of PCMAG
 - May-Jun Micromegas w/ two different resistive anodes (New T2K electronics)
Setup and test of laser-cathode calibration
 - Jun GEM+Timepix (Bonn)
 - Jun Installation of PCMAG moving stage and SiTR support
 - Jul TDC electronics with an Asian GEM module
ALTRO electronics study w/ Asian GEM
 - Jul-Aug Full installation of PCMAG moving stage
 - Aug Micromegas w/o resistive anode with laser-cathode calibration
 - Sep Bonn GEM module (small area GEM with ALTRO electronics)
 - Nov Micromegas with SiTR
- **2010:**
 - Mar Micromegas using PCMAG movable table.
 - Mar+Sept 3 Asian GEM modules w/ gating GEM or a field shaper using the PCMAG movable table (7616ch ALTRO electronic)
 - Dec Octopuce (8 Ingrids) test on LP with 1T (Saclay/Nikhef)
- **2011:**
 - Apr First test of DESY GridGEM module (B=0T)
 - May New AFTER electronics for Micromegas
Installation of new cosmic trigger logic
 - Jun/Jul DESY GridGEM module with ALTRO read-out
 - Jul PCMAG shipped to Japan
- **2012:**
 - Mar Return of PCMAG
 - Apr-Jun Installation of upgraded PCMAG
 - Summer / Autumn (tentative):
 - Test with 7 Micromegas modules with integrated AFTER electronics
 - Test of Japanese GEM modules
 - Test of DESY GridGEM module

- Light weight; made of composite materials
- \varnothing 72cm, L= 61cm
- Modular end plate, up to 7 read-out modules

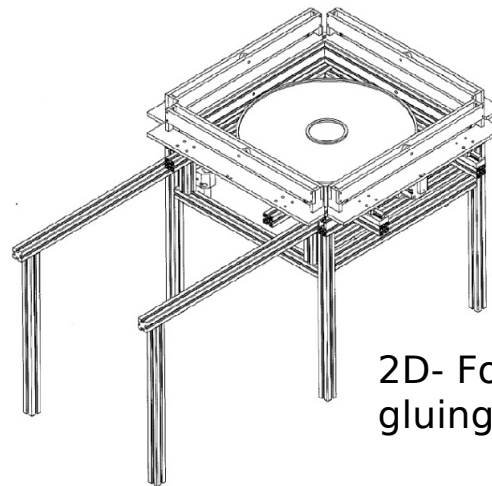
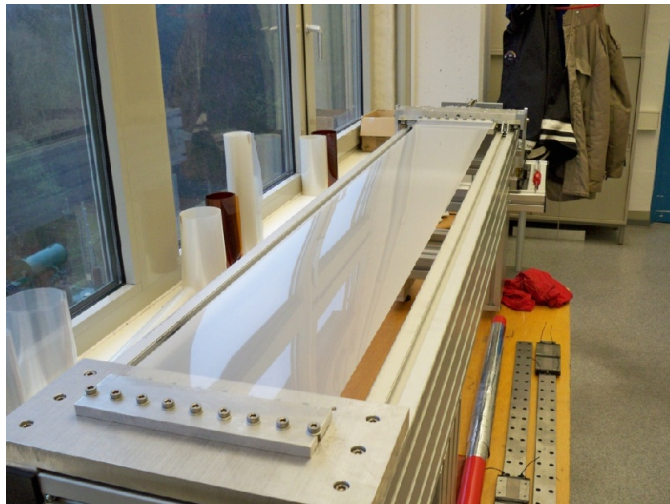


- 2nd field cage to fix mechanical inaccuracies: autumn/winter of 2012

- Investigation of HV stability ongoing

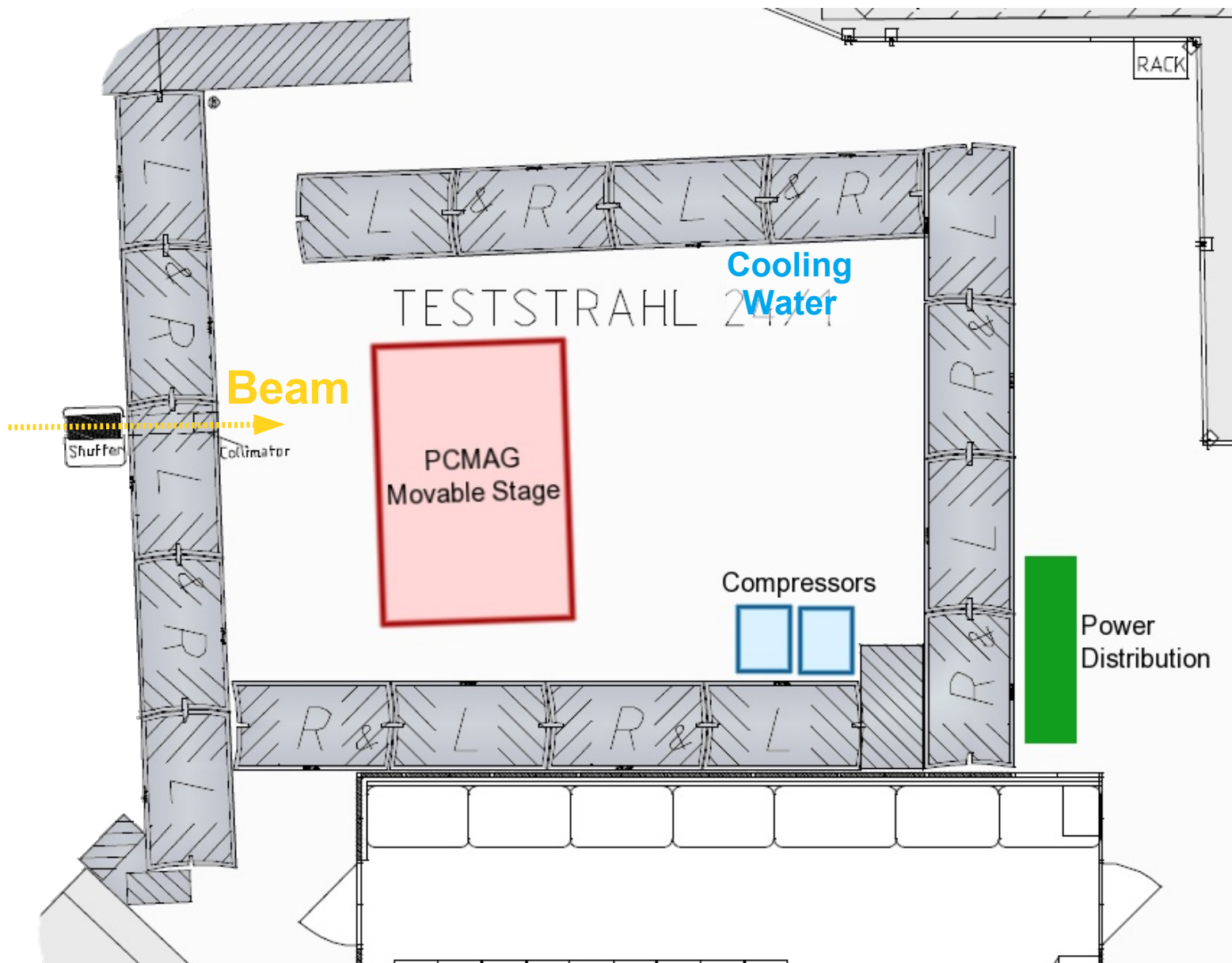


- Studies for “next generation” cathode based on stretched foil: on hold

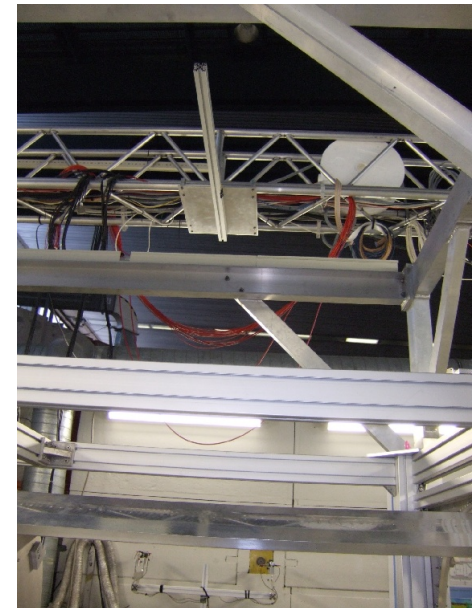


2D- Foil tension and
gluing device

- Power:
 - Improved cables for PCMAG up to 448A, 1kV
 - New power lines for PCMAG compressors: 35A each
- Instead of water chiller: cooling water
 - 7 °C
 - From central DESY lines
 - Available 20. April

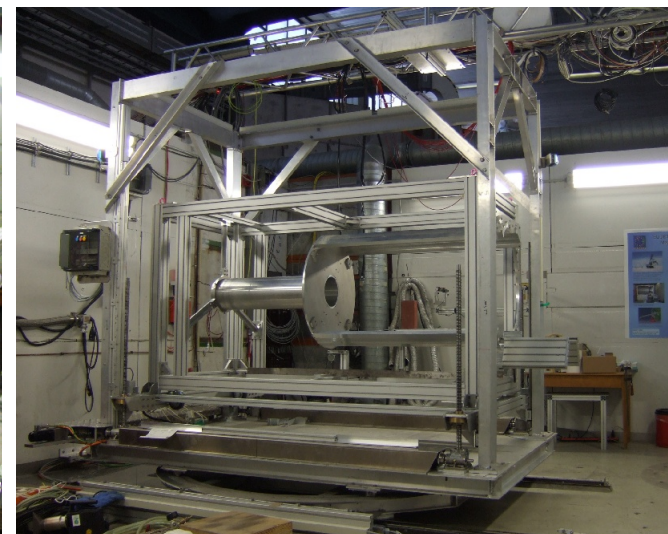
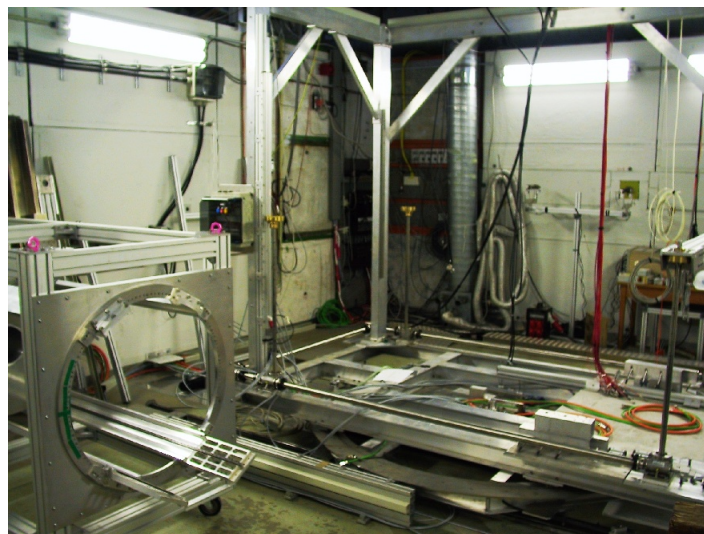
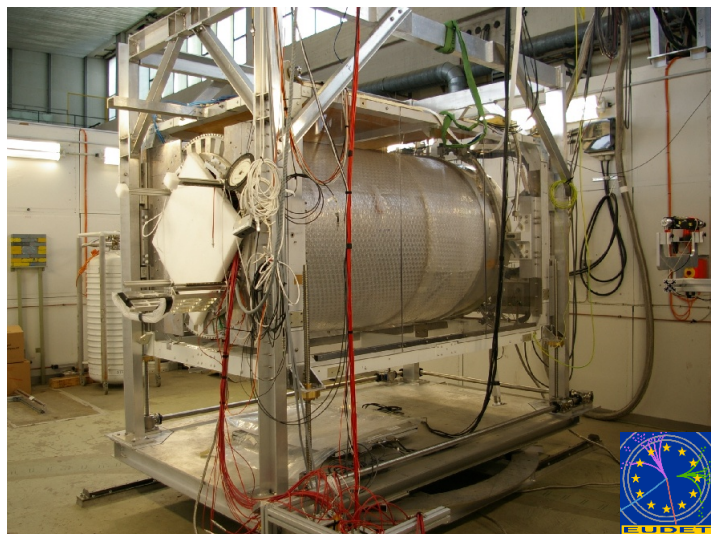
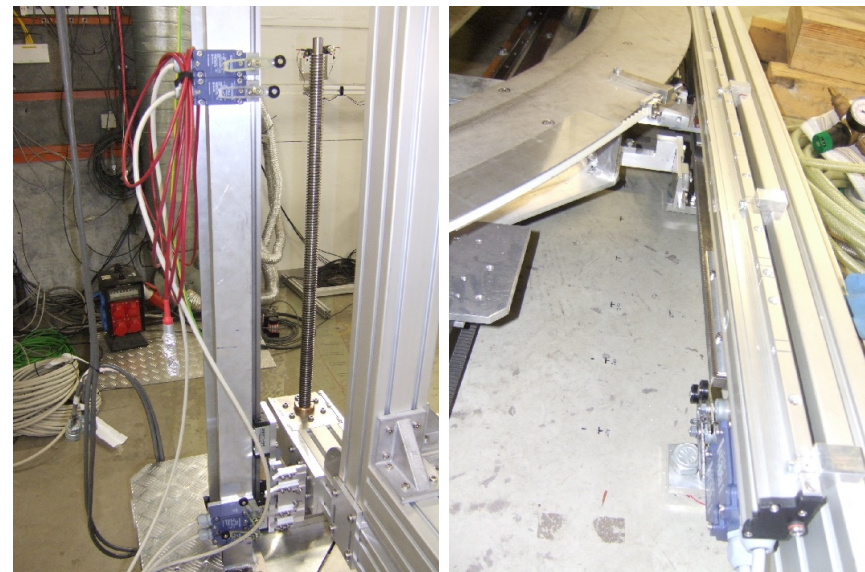


- Area for compressors and new power lines cleared
- Power lines to PCMAG will be replaced
- 2nd rack for PCMAG monitoring/steering
- New arm for guiding pipes and cables to PCMAG

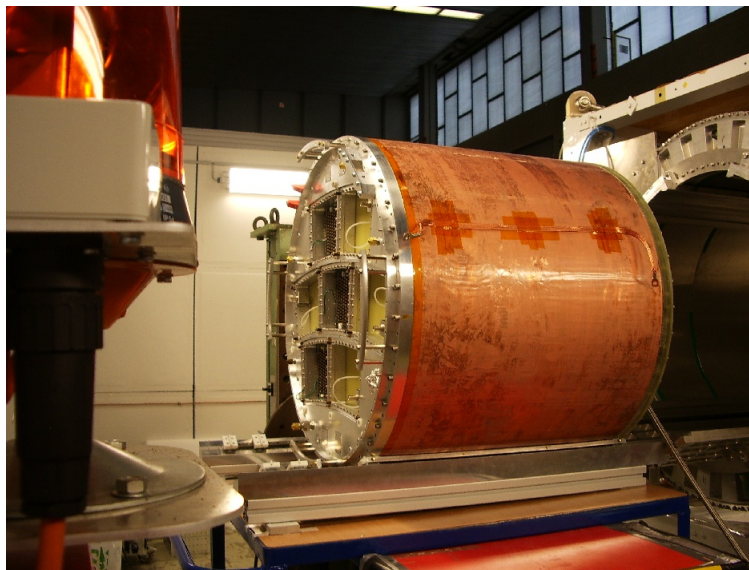


- Work to prepare T24/1 for upgraded PCMAG ongoing
- Current schedule (tentative)
 - Till mid/end April
 - Installation of PCMAG in movable stage
 - Installation of additional power and cooling water lines
 - End of May till mid July
 - Installation work at stage, alignment, new magnet power cables
 - Installation of compressors and monitoring & steering racks
 - Cooldown / test runs / settings of dump resistor and quench protection
- Setup available end of June

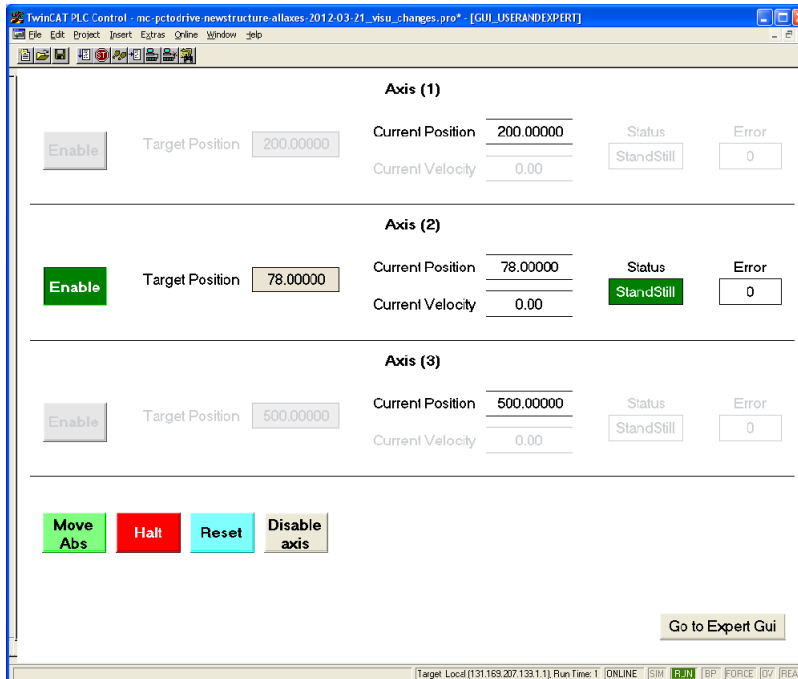
- PCMAG left DESY 26. July '11
- During absence:
work on the movable stage
 - Improved cabling including end switches, stop buttons and other safety devices
 - Position measurement system
 - Axis covers, improved holding structure, etc.
 - “Steering rack” upgraded till beginning of May



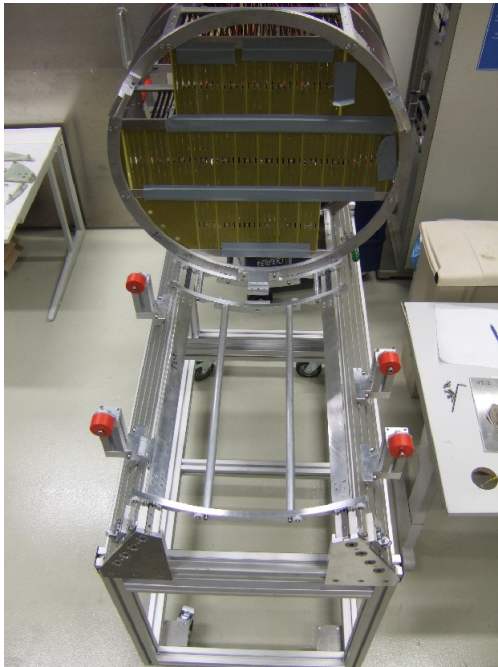
- New movable table for LP and ALTRO rings installation and mounting (currently being modified to include height adjustment ↔ uneven ground)



- New steering software
 - Includes position measurement from new, external system and signal from end switches
 - Basic user part (nearly) ready
 - Expert GUI under development



Overview of Assembly Groups



TPC_29_TC_test_cage

TPC_16_SR_support_rail

Position measurement heads mounted on sliding carriage. Read optically marks on field cage ring and rails

TPC_24_SI_silicium_detektor_support

TPC_17_LP_large_prototyp

TPC_20_ST_support_tool

TPC_19_MP_heidenhain_ring

TPC_22_AE_Altro_elektronik_ring

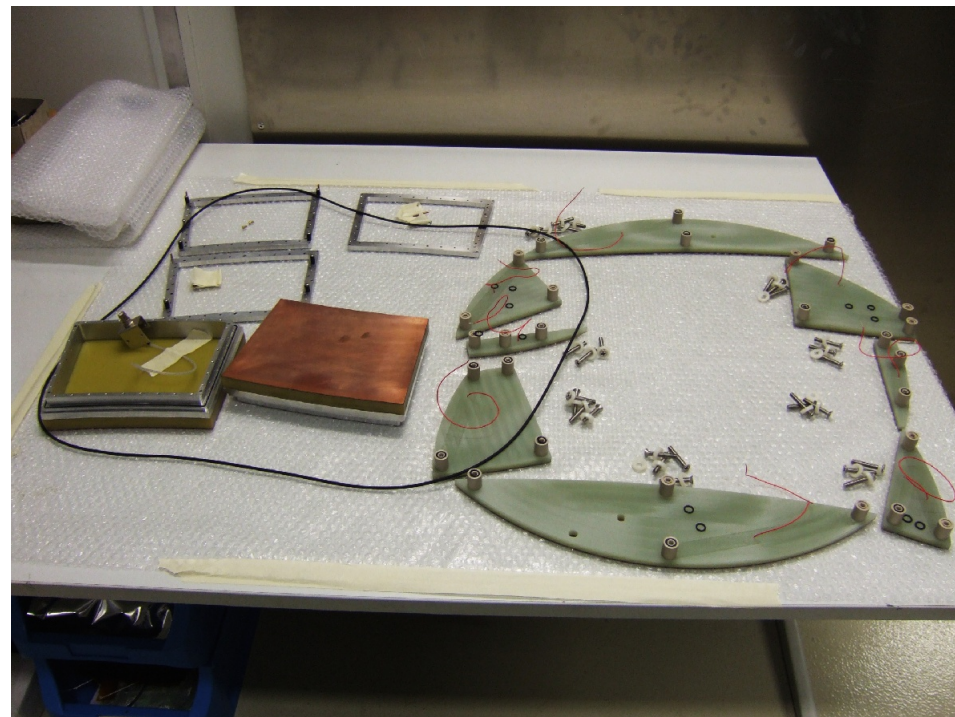
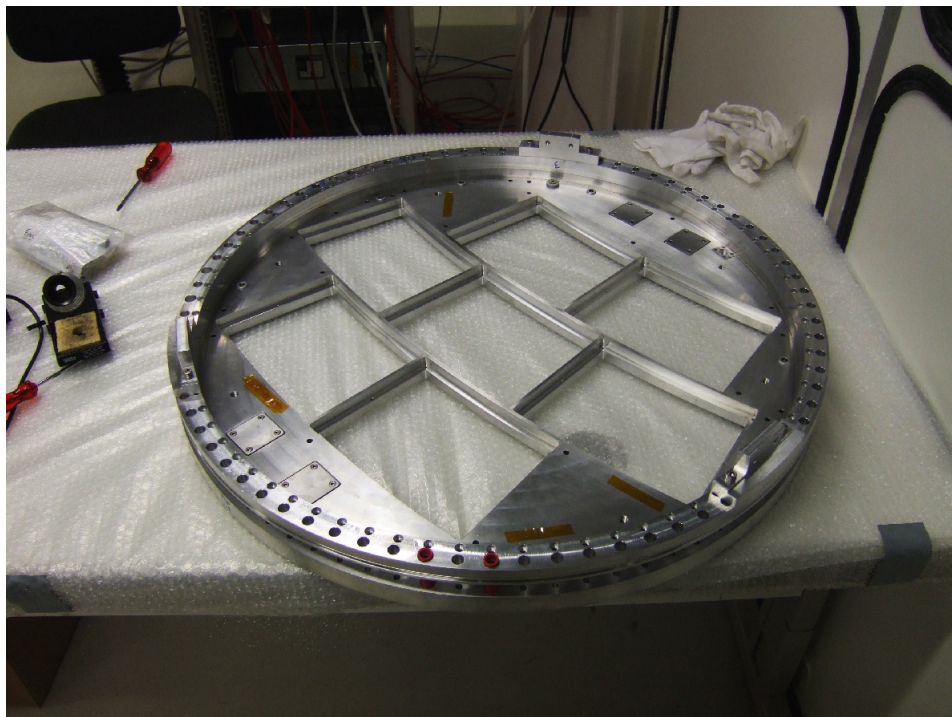
TPC_19_MP_measuring_system_slide

TPC_23_AC_Altro_cable_ring

TPC_22_AE_Altro_elektronik_ring_slide

TPC_23_AC_Altro_cable_ring_slide

- Current end plate modified to include additional ring for position measurement

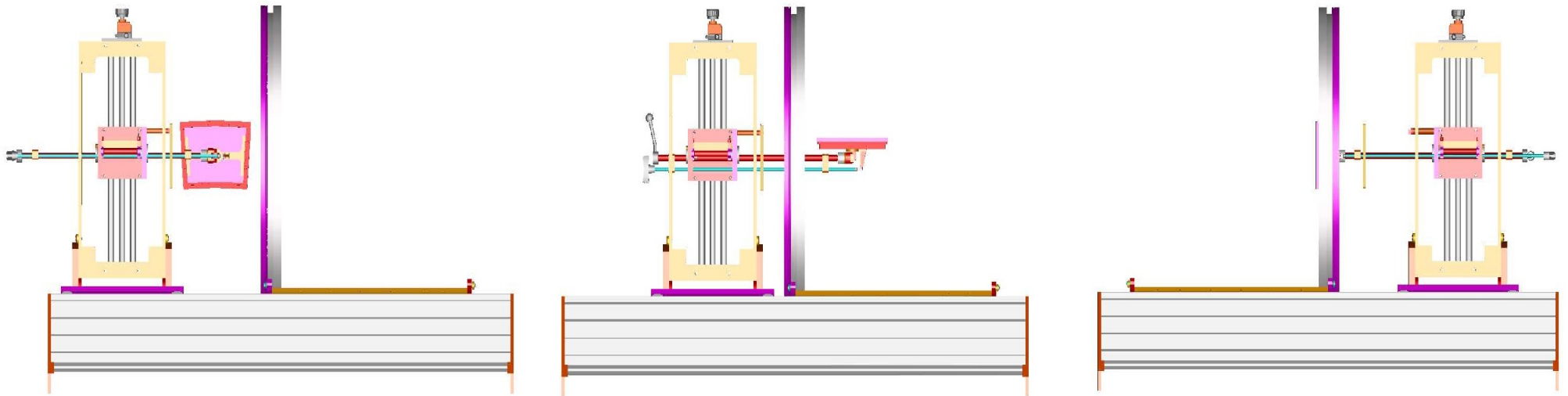


Status 22.03.2012

- Bending under weight in the order of $100\ \mu\text{m}$



- Air compressor for ALTRO cooling might be available again in summer
 - Alternatives being discussed
- Hodoscope: on hold
 - Zeus vertex detector parts available except Helix driver card
 - Still no manpower to work on this
- Module insertion tool: on hold
 - Ideas discussed, next steps defined
 - Due to overlap with other project delayed; not ready for test period this summer



- Demand for use of T24 increasing (already 4 users this year)
→ we will have to coordinate our schedule with other users
- Will be worse in 2013: SPS shutdown
 - DESY test beam coordinators expect high traffic
 - Planning already started
 - 3 months shutdown in March, April, May
- Known plans:
 - June: Micromegas 7 module test (postpone due to PCMAG?)
 - End of summer / autumn: Japanese and DESY module tests
 - Anybody else? Please inform me as soon as possible.