

Mockups and Tests

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First Mechanical Mockup
Module Test Stand
Conclusions

First Mechanical Mockup

Goal: Get fast Mockup to aid design decisions

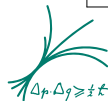
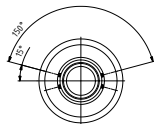
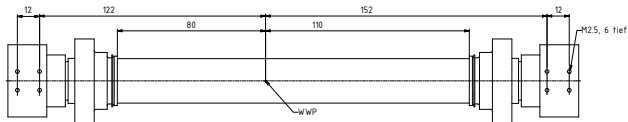
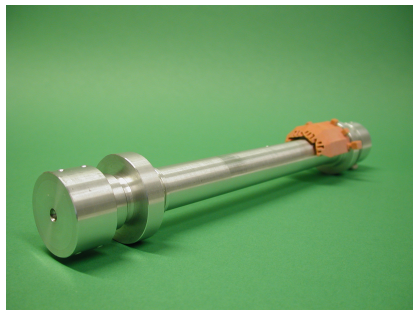
- ▶ don't wait for final Beampipe design
 - ▶ use fast prototypes (larger tolerances)
 - ▶ un-thinned module dummies, glued with overlapping piece in outer layer
 - ▶ multi-layer kapton cables as available
- ➡ check design problems
- ➡ verify assembly procedure
- ➡ check transport handling
- ⚠ no cooling tests (except maybe airflow)



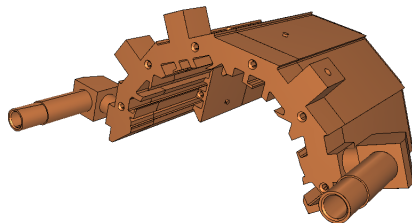
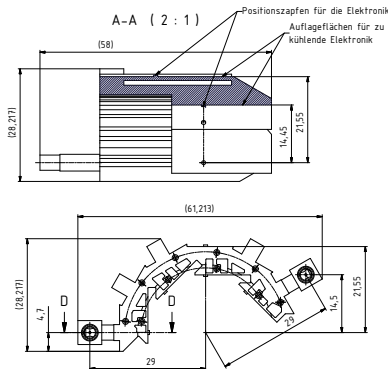
Beampipe Mockup

Beampipe mockup produced using current dimension estimates

- ▶ aluminum
- ▶ 12 mm outer radius
- ▶ 110 mm (80 mm) “beryllium” part in forward (backward) direction from IP



Integrated Support and Cooling Structure



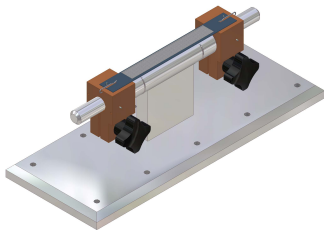
First prototypes produced using Fast Prototyping

➔ ordering 3 complete sets next week

- ▶ polycarbonate
- ▶ ≈ 1 k€ in total
- ▶ not final precision
- ▶ should be available in 2 – 3 weeks



Module Test Stand

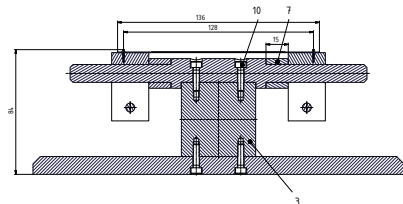


Current aims for testing

- ▶ measure position stability under temperature cycles
- ▶ test glueing of outer layer
- ▶ maybe module deformation (aiming for $\pm 5 \mu\text{m}$ precision)

Mechanical module test stand in production

- ▶ Up to three modules
- ▶ aluminum “beampipe”
- ▶ inner and outer layer (distance rings)



Optical position measurement planned, needs to be specified



Conclusions

Mockup

- ▶ Mockup production started
- ▶ Beampipe mockup and first ISCS prototypes ready
- ▶ Module and new ISCS should be ready soon

Tests

- ▶ test stand in production
- ▶ climate chamber in house
- ▶ measurement procedure has to be specified and implemented

