

VELO UPGRADE MECHANICS MINUTES

Attendees: Themis, Freek, Wolfgang , Karlis, Vinicius, Kazu, Paula, Edgar, Raphael, Victor

ACTION LIST

- No actions listed

DISCUSSION

1.1 METROLOGY

Vinicius got a quote from a company using Raph's idea. Company proposes laser measurements for linear encoder. S/w of Oscar for used for reflection of modules in tank might be useful. Stable holding of camera is crucial, maybe get 20-30mu. We need relative values (module to module).

1.2 MEASUREMENT OF THE FOIL – DUMMY MODULE DISTANCE AT FOIL REPLACEMENT

The contact switches for the beep module with a force of 30gr/mm**2 has been ordered. Needed before installation of detectors.

Slides of Freek show first results of Pascal Sainvitu laser scanner setup (~150mu). Used an etched and Torlon coated half box. Measurement points have been aligned to CAD model. Try to make planes with points. Analysis of measurements to be done. System could be used e.g. during SMOG prealignment.

Paula is looking with a different metrology group at CERN into another measurement setup (Ahmed).

1.3 PT100 CABLE ROUTING INSIDE SECONDARY VAC

no news today, last weeks news below:

Kieran proposes to use the cable Allectra 301-KAP-RIB4-300M: KAPTON RIBBON CABLE, 7x0.12mm, 4 WIRES, TYPE 'KAP301' (= RADIATION RESISTANT) (from Quote #75673 see 6 weeks indico).

PCB production on both ends of these cables should be now launched (Edgar)

Peek cable constraint pieces for the new routing of the cables are in production.

SMDX pt100 sensors are now envisaged.

Tefzel cable ties to be ordered soon (delivery time)

We need to define as well the base heating power cables. Sasha is proposing the Allectra 301-KAPM-200 cable with an outer dia of 2.15mm

1.4 PT100 POSITIONING AT ISOLATION VAC

no news today, last weeks news below:

Allectra 301-KAPM-060-PAIR1-100M is proposed to be used (listed at same quote as above). Length of ordered cable to be determined.

On the 3rd feedthrough now 10 pins are still free to be used, Proposal: 2 pt100s on pressurized air capillaries (one at first line, second at last line). 1 pt100 on one capillary arriving at one expansion volume, 1 redundant pt100 at output manifold, 1 pt100 flying in the air. The number of pt100s in tertiary vacuum from Kieran does not correspond to Wolfgang's number! Kieran to revise.

SMDX pt100 envisaged.

1.5 EXPANSION VOLUME, FILLER INSIDE THE EMPTY VALVE VOLUME

Input safety valve of C-side (and likely output safety valve for A-side) is not installed in the orientation as we would have liked to minimize CO₂ leakage volume in case of accident. This would increase the liquid volume of CO₂ substantially which has severe consequences for possible transfer of CO₂ into prim vac.

Kieran has sent a prototype of his new design for the filler to CERN. A spring which will prevent that filler is moving during flow. Checks at CERN are ongoing. Raph/Kieran will check if the spring is magnetic.

1.6 BASE METROLOGY AT LIV

No news! last weeks news below:

John presented last time measurements for the C-side base (see slides). He was asked to produce a plot with x (slot number) and y (distance between tip of a perfect module to a perfect foil position) with this base to see deviation from the 890μm nominal distance. Then we could choose for installation shorter modules where the margin is smaller etc.. John promised to do this in the coming weeks at least for the 4 worst slots – started!

A-side metrology later. Comparison of Oxford to LIV metrology needed.

1.7 OTHER BUSINESS

First 4 unit feedthrough tests are ongoing. Send later to LIV only for mechanical tests.

Themis: What should be the minimum cleanliness requirement during assembly

Freek: Velo caverne is already plastic blocked to reduce dust when opening vactank

Wolfgang: First 5 long HV cables have been laid

Themis: Provisional testing schedule in LIV will be presented soon

Paula: report about UT pipe dirt issue will be presented next week

Kazu: max bake-out temperature after Torlon coating: 200C for 3h

Kazu: A2 deformation at +/- 10mbar according to expectations

Kazu: Torlon coating (~30 thin layers) thickness measurements could be done with weight before/after. A2 transport to CERN next Friday. We could glue pt100 (ceramic glue) and their cables (Araldite) after NEG coating in grey room to save now time, if that is ok for NEG coating (Wolfgang asked already Pedro, answer?)