Collimator Design Meetings

Minutes of the meeting 57 (03/02/2005)

Present: Aberle, Assmann, Bertarelli, Calatroni, Hanni, Losito, Mayer, Perret

Minutes # 56: errata: replace the phrase “High Order Modes (HOM) tests” with “High Frequency current tests”

PURCHASING PROCEDEURE

1. According to Oliver no critical order has been issued as of 03/02/2005.
2. He also informed that Single Tender orders may be launched for those items not exceeding 200 kCHF, having critical lead-times. For non critical orders the procedure to follow is the standard one.
3. Alessandro stated that no other order will be issued as long as an official e-mail to/from the Finance Dept. will confirm this information and give exact guidelines on the procedure to follow.

ELECTRONIC COMPONENTS

1. Roger presented his study (T0072305PL.pdf) foreseeing a separation of the switch cam support from the gap position sensor. The new layout allows the use of several different size LVDTs (up Ø20 mm), without affecting the design of other components.
2. The new study also encompasses a different layout for the cooling pipe inlets and outlets. The new stainless steel terminals are longer and allow an easier connection with the flexible hose.
3. The new design is approved, in particular for what concerns electronic equipment, by Ralph and Roberto.
4. A proposal document will be prepared by Oliver, specifying what should be mounted/assembled at CERCA and what at CERN, in particular for what concerns switches, springs etc. (**action** Oliver).

REPORT OF 50TH CWG MEETING

1. Ralph shortly reported about the outcome of latest CWG. For details see http://lhc-collimation.web.cern.ch/lhc-collimation/#Minutes
2. From Ch. Rathjen it emerged that no problem due to non-symmetric heating of the vacuum flanges should be expected: both tested flange collar systems worked well also under extreme non-uniform heating (for details see CRathjen_2005-01-31.pdf).
3. A talk given on RF trapped modes simulations showed that the expected deposited heat on the RF fingers should be ~4W (see AGrudiev_2005-01-21.pdf): this should not pose a major problem if compared to the heat deposited by the particle shower; nonetheless doubts remain on the reliability of the material properties used, on the actual distribution of the energy and on the need and possibility to add ferrite absorbers. A final decision shall and must be taken at the next CWG on the **14/02/2005**. This is the **last chance** to include any modifications in present TCSG design, since drawing will be officially released by end of February.
4. Radiation issues will be also discussed at next CWG.

RF CONTACT TESTS

1. Sergio presented the measures executed on silver coated RF fingers after 1500 wear cycles against Rh plated flange: 8μm Ag coating is never completely eroded (see AgThckMeasOnRFcont1500cyc.pdf); nevertheless Sergio proposed to increase the coating to 20-30 μm.
2. To further decrease the contact bulk impedance, Sergio will check if the use of high-conductivity CuBe is viable.

STATUS OF 3RD PROTOTYPE MANUFACTURING

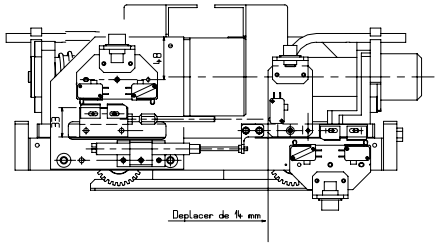
1. S. Mathot informed in a mail dated 31/01/05 that the 3rd collimator components will be welded and brazed within week 7.

AOB

1. It is decided to remove the prototype from LSS5 and to bring it back to surface. It will be used to perform functional tests: in particular spring retraction forces will be checked in several configurations (45º, 90º etc.)
2. According to Ralph, Rosario will prepare general description of the cooling system to submit to SC/RP for official approval.
3. A discussion is held on the feedthrough cable connection: Kapton shielded cables would be accepted by VAC group. Could we use Coaxial cables? To be quickly studied. It is decided that the electrical feedthrough will be a standard one!
4. 4 samples of CuNi10 pipes (1 m long) have been received by Alessandro. Bending tests are ongoing and metallographic analyses are foreseen. One sample has been given to CERCA for in-house tests. It is decided that the required fillet radius of the cross-section shall be R1(0/+0.5)mm.
5. Manfred informed that the closing force necessary to tighten a Ø16 mm quick connection would by far exceed the collimator weight. He obtained the pressure loss figures for the Ø10 connection: at 25 l/min it is ~0.2 bar. Based on this, the Ø10 mm seems acceptable.

ACTION LIST to be followed up:

Play between motor spindle and jaw	#34	Roger
Non-symmetric heating of vacuum flanges	#34	Vasilis, Oliver, Miguel, Rathjen
Radiation issues – heat evacuation, air duct, space, shielding		Ralph
New Fluka simulation for 0.45/7TeV accident case (**URGENT**)	#47	Vasilis
Updated calculation on beam optics during transient	#49	Ralph
Acceptable RF design by RF people	#50	Ralph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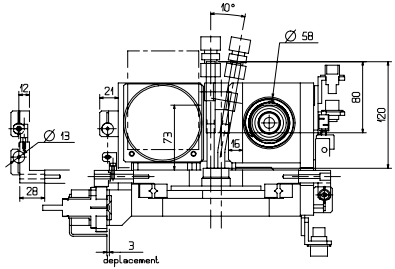
Deplacer de 14 mm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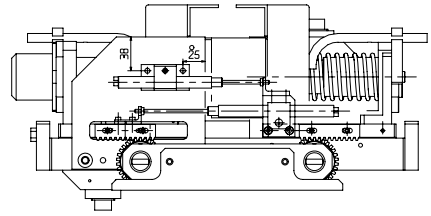
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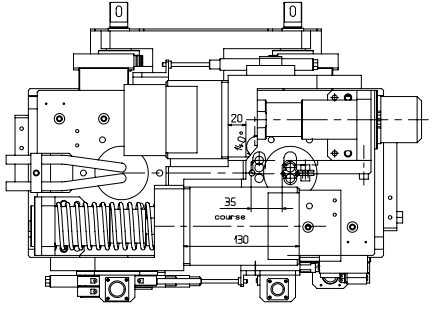
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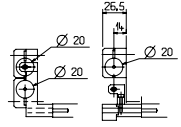
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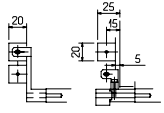
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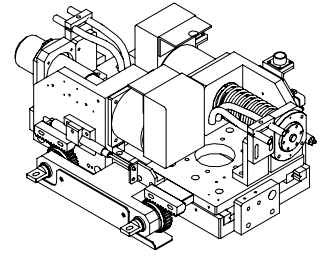

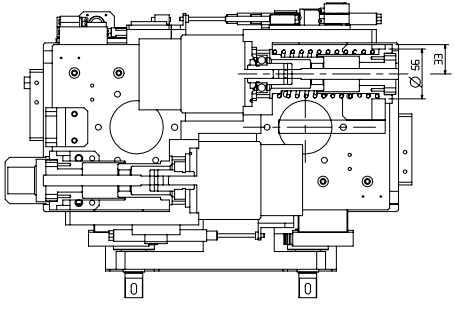
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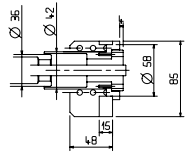
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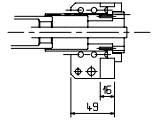
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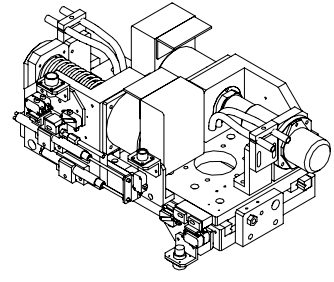
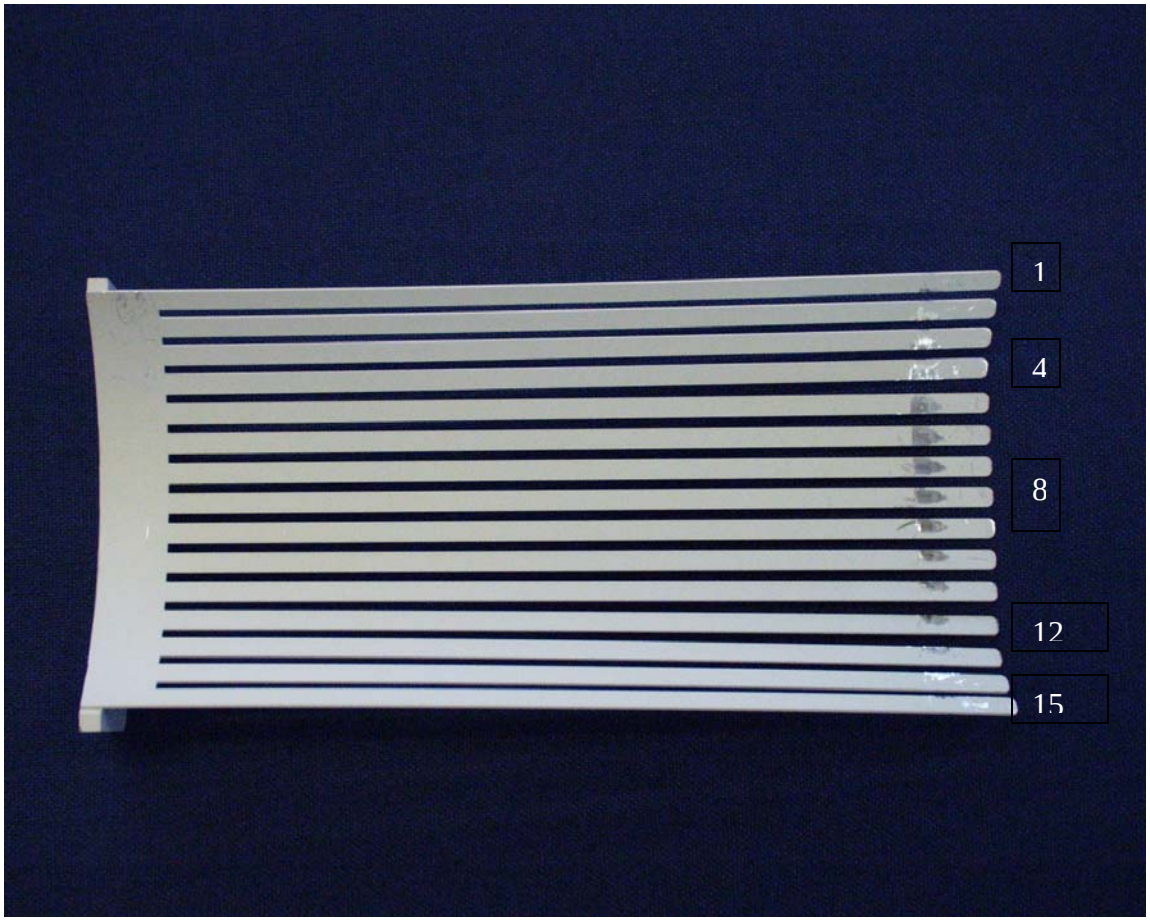
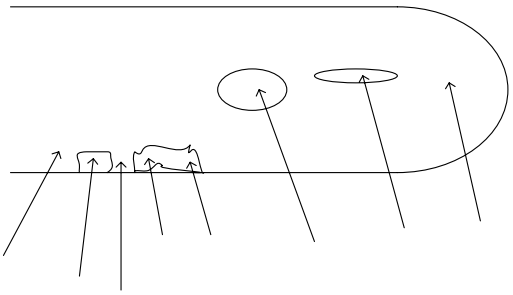
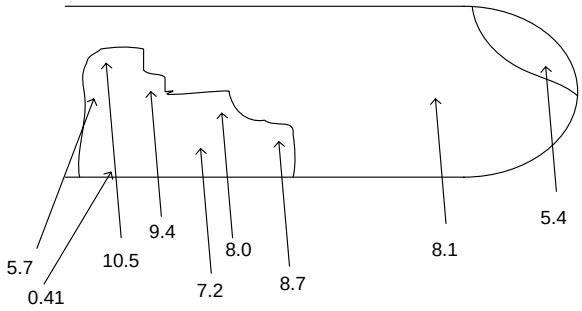


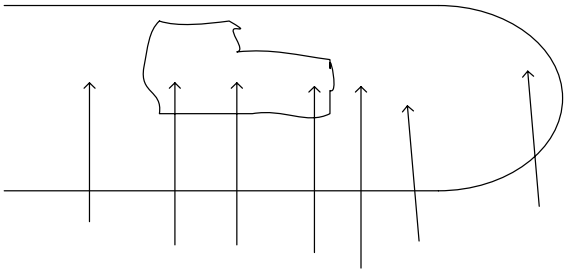
Silver thickness measurement on RF contacts after 1500 cycles

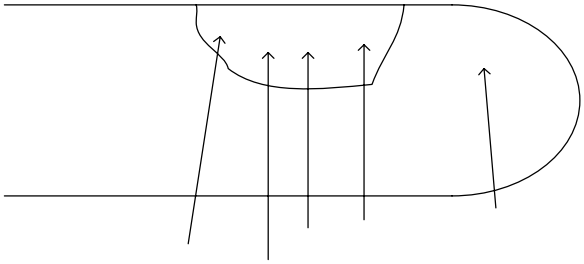


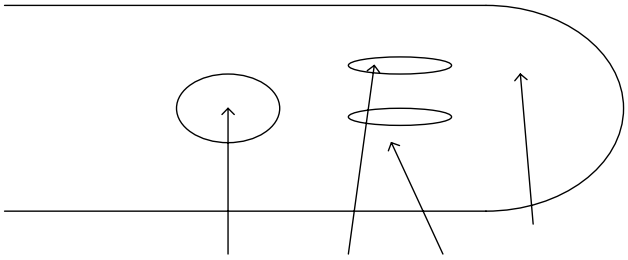


Contact finger no 4









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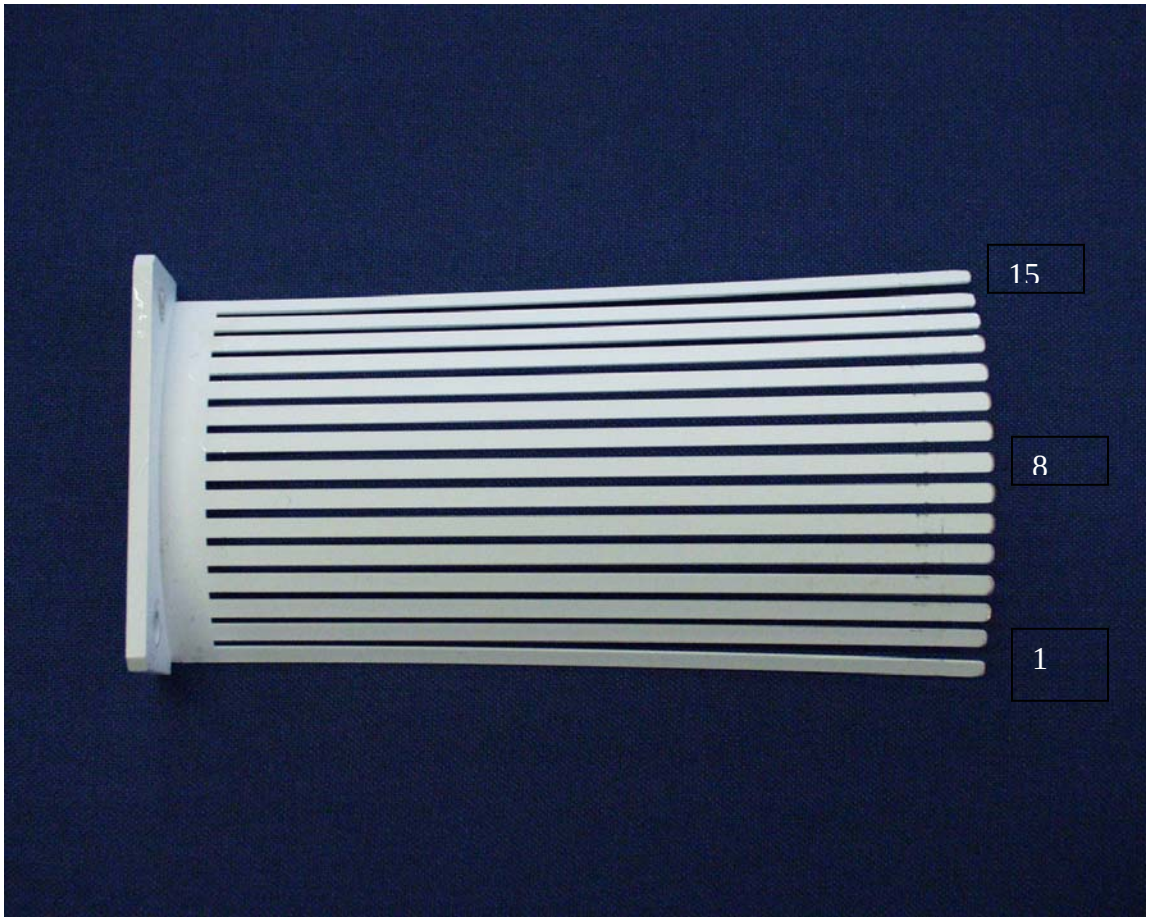

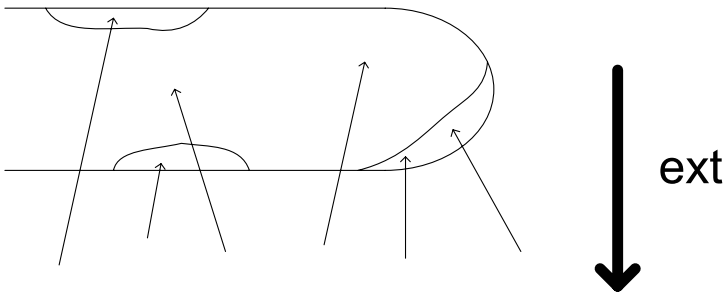

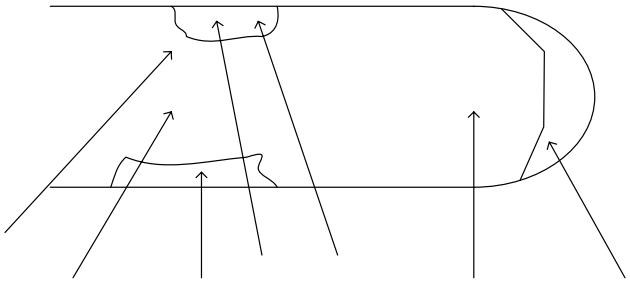

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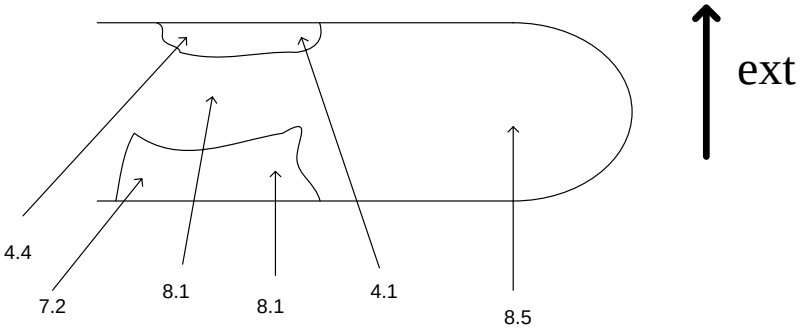
Contact finger no 15



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