

DATE OF MEETING: 16-17/03/2004
PEOPLE: A.Pellegrino, L.Hajduk, J.Michalowski
DATE OF MINUTES: 25/03/2004

Production Ali spacers in Poland under INP supervision

it was agreed that NIKHEF (H. Schuijlenburg) would send revised drawings with increased tolerance on the thickness (+0.050mm) and Leszek would get a revised quote and have 60 pieces made with shortest possible lead time.

At the time these minutes are written the drawings were made available for spacer types U and L; Leszek had 4 pieces made and advised against proceeding with this company based on quality and lead time.

Production "special" spacers in CFC by INVENTOR

NIKHEF accepted to pay the 6 SU pieces produced by Jurek at a price 37 EUR per piece. It was also agreed that mass production of the parts is ok for both parties. The road-map for mass production is:

- send offer with price break up ==> DONE
- synchronize drawings:
 - o) Jurek sends SU drawings to Henk ==> DONE
 - o) Henk implements Jurek's drawings of SU in NIKHEF CAD, in OFFICIAL repository ==> ???
 - o) Henk makes analogous drawings for all spacer types ==> ???
 - o) Jurek and Henk agree on drawings
- decide question of slotted hole tolerances.

At the time these minutes are written, the following agreement had been reached:

- o) NIKHEF relaxed tolerances on slotted hole accuracy from -0 + 0.012mm (H7) to -0 + 0.050mm and suggested to INP to use a 4mm milling-tool (see mail exchange Leszek-Henk).
- communicate Qy of all insert types to INVENTOR ==> DONE

Production "special" inserts in CFC

It had already been agreed that production of all special inserts for all S panels would be INP responsibility. Also tech. details had already been discussed based on the experience of the first 10 S1U panels delivered. In order to finalize this the following road-map is proposed in complete analogy with the CFC spacer production:

- synchronize drawings:
 - o) Jurek sends SU drawings to Henk ==> DONE
 - o) Henk implements Jurek's drawings of SU in NIKHEF CAD, in OFFICIAL repository ==> ???
 - o) Henk makes analogous drawings for all

special insert types

- o) Jurek and Henk agree on drawings**
 - decide question of slotted hole tolerances.**
- The guidelines agreed upon for the CFC spacers should be followed here as well.**

Production special panels

INP wishes to produce all S1U panels at next iteration, i.e. starting middle of April. A minimum of 20 S1U was requested. We tentatively (should be confirmed by Warsaw people) agreed that producing all S1U panels should be ok, provided that:

- Warsaw people have by middle of April made at least two S1U modules with the 10 panels of the first batch and provided feed-back on the quality of panels, inserts, etc.**
 - a small sample (min 5) of S1L panels is produced before the S1U production in order to allow at least one S1L modules to be built in Warsaw by May.**
- Pre-requisite to achieve this is to have all drawings of S1L panels (inserts etc.) from Henk ==> 31/03/2004**

Problems with Ali insert flatness reported by INP

Problem was clarified. At the time these minutes are written, there have already been mail exchanges to the conclusion that:

- problem reported gives finally rise to only local imperfections that seem not to be a problem**
- check of the compliance of the Ali inserts is full responsibility of INP. Tighter and more regular checks were suggested in order to avoid these and similar problems in the future. Non-compliance of the inserts can ultimately generate rejection of a panel by NIKHEF.**

Discussion on panel straightness

- measurements of panel width:**
 - o) results from first 40 F panels were discussed.**

At the times these minutes were written, a statistical analysis with plots of panels width was sent by Niels Tuning and discussed. We agreed that final results show small spread in distribution and are some 70 micron above specs on average. At the end of the day, few panels were just above specs, but were accepted, and one single panel had to be rejected being 0.5mm off.

Details in the mail exchange Antonio-Leszek.
 - o) INP reducing nominal width at INVENTOR by 70 micron is not very practical. NIKHEF should return feed-back on this**

issue and close it definitely.

==> 29/03/2004

- measurements of panel straightness:

- o) Antonio reminded that specs are on straightness and not on width. We measure width for practical reason, but it is INP responsibility to check that this is sufficient to ensure the correct straightness of +/-0.1mm per side. Antonio would like to see periodic checks of the panel straightness, suggest that to "date of last check of saw straightness" figures for deviation from straightness are explicitly added on the control sheet, e.g. five deviations per panel side along the panel length, analogously**

done for the width measurement.

to what

Discussion on panel flatness

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Flatness checks have not been performed on first batch of 40 panels, due to lack of information on NIKHEF side.

At the time these minutes are written, sampling checks by NIKHEF showed excellent flatness.

NIKHEF will provide description of checks that should be made in order to fill fields in the QA sheet

==> 29/03/2004

Discussion on panel length

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The length is defined between the centers of the dowel pins.

- It was reported that the length measurement was missing from the data sheets of the S1U panels. It was promised that it would appear as a sample check in the F panels data sheets.**

At the times the present minutes are written, it turned out that this check was done only a couple of times for the 40 F panels. It is desirable to increase this frequency, especially in view of accidents taking place with insert dimensions.

NIKHEF and INP have to agree that the following is checked:

- o) panel full length (insert edges)
o) pin-to-pin length (operative definition)**

==> 31/03/2004

- Antonio requested that a field "Date of last check of table with laser interferometer" gets added to the In-Work checks**

- Antonio requested that length comparison with Panel 0 gets added to the checks, as it was always meant to be there. NIKHEF has provided dowel pins for both holes, but it stays tricky. Both parties should cooperate to reach an operative definition. It is difficult given the slotted hole and the tight tolerances on the hole dimensions, but the complete absence of such a check creates a hole where accident like that reported by Leszek (wrong position of hole on insert) can take place.**

**This check should be defined and quickly added to the checklist
at least as a sampling check ==> 31/03/2004**

Discussion on slotted hole accuracy

**Many holes marked by INP as ok on datasheets, are found unsatisfactory by
NIKHEF at checks: strictly speaking, many holes are outside specs.**

**This issue has been discussed several times in different contexts since
the meeting. Henk suggested a change of specs for the spacers.**

Can a similar change be suggested for insert/panels?

Henk please think about it and provide an answer by

==> 29/03/2004

**I am willing to help as a physicist, if there are questions about final
accuracies desired.**

Production Materials

**- Cerasolzer 123 is the final choice. INP reported that only one
roll of 32 gr was still available, enough for about 80 F panels.
Since the meeting, NIKHEF sent another 30 gr roll and ordered
300 gr and 1m solder tips. ==> DONE**

**- INP complained about the delay in label delivery.
NIKHEF committed to manufacture all labels for
once and for all ==> ???**

[Remarks of the editor:

**o) I would like to point out that, while NIKHEF
committed to provide optically readable labels,
it is absolutely INP responsibility that ALL panels
are identifiable and can be linked to their data sheets.
A panel without data sheet will not be accepted**

**o) I suggest that NIKHEF produces double copies of all
labels for the OPTICAL-ID field of the datasheets.**

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**- Cu tape for insert face: INP received 13 (2 + 11) from NIKHEF.
Estimated that a total of 18 is needed.
NIKHEF shall send 5 more by ==> 15/04/2004**