Collimator Design Meetings

Minutes of the meeting 72 (07/09/2005)

Present: Aberle, Assmann, Bertarelli, Chamizo, Mayer, Perret, Principe, J. Vollaire (SC/RP)

Minutes # 71: no comments were given

COOLING CIRCUIT LAYOUT

1. The final layout for the external cooling system is still under discussion, though some key issued have been already set:
    a. Two collimators will be cooled in series by a circuit with a single connection to the main supply line (DN 100).
    b. Each collimator outlet manifold will be equipped with a temperature sensor. Oliver shall provide its dimension to Roger for integration in the drawings (**action** Oliver).
    c. 2 manually operated water-gates will be placed on each circuit (inlet and outlet).
    d. 1 filter downstream of the inlet gate.
    e. No bake-out purge system is foreseen (see point 3 below).
2. Some issues are still under discussion:
    a. 2 phase I collimators or 1 phase I + 1 phase II per circuit?
    b. Flow adjustment system (fixed or portable).
    c. Flow-meter
3. The decision not to use any purging system during bake-out must be confirmed by a specific test to be carried out on a prototype with the involvement of TS/CV and AT/VAC. The test will be organized by Rocio (**action** Rocio).
4. Oliver will prepare an engineering specification to finalize the cooling circuit layout. A final decision must be taken very quickly since TS/CV activities on the supply line in the tunnel are due to start in October / November.
5. Specific meetings will be also organized in the coming days.
6. Phase II cooling issues: since the phase II collimators might use high-Z materials, the thermal load to be evacuated could be much higher (up to 5 times), this would require a larger water flow and could pose problems if the same pipes and plug-in fittings are used (excessive water speeds). Alessandro will preliminary estimate the required flow rate and maximum speeds for such a case. (**action** Alessandro)

ELECTRONIC EQUIPMENT

1. LVDT diameter: Roberto transmitted some information to Manfred. The external diameter of the LVDT depends on the manufacturer and of the model. It is not yet possible to define if it will be Ø12 or Ø20. It is decided that no LVDT bracelet manufacturing will be launched as soon as an answer is not available.

WATER PLUG-IN

1. The offer from the supplier has been received.

COLLIMATOR SUPPORT

1. The drawings for all the support components are ready: the exact number of each variant (different height) must be provided to Roger for M. Polini to launch the IT (**urgent action** Ralph).
2. Even if the order might be passed via TS/MME, AT/ATB will remain responsible for the production.

ALIGNMENT BENCH

1. Roger presented a proposal of the alignment bench (marble), including the aims and the telescope position (T0082613PL_ID.pdf). Rocio gave some details concerning the attainable precision and the cost of the system

IN-HOUSE RECEPTION AND ASSEMBLY

2. Rocio gave a short presentation on the acceptance procedure to be followed upon reception of the collimators. Details can be found in ReceptionProcedure.pdf . A more detailed procedure will be prepared by Rocio in the coming weeks. (**action** Rocio)

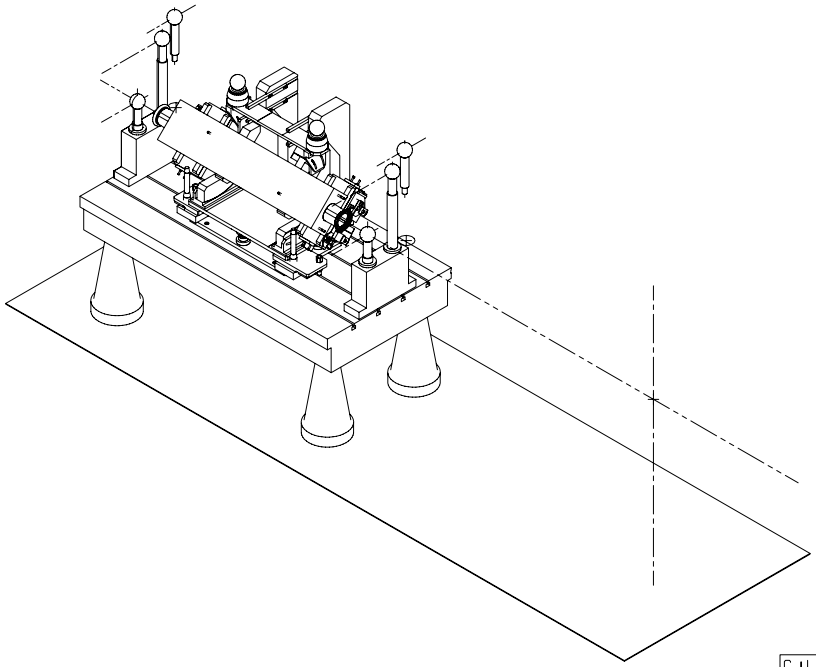
ACTION LIST to be followed up:

Play between motor spindle and jaw	#34	Roger
Updated calculation on beam optics during transients	#49	Ralph
New heating tests for pre-series collimator blocs	#67	Sergio & Alessandro
Strategy for external cooling system	#70	Oliver

AUTEUR	: MAGC-EST
DATE CREAT	: 31-AUG-2005
HISTORIQUE	: MAGC*31-AUG-05
COEF POLYGON	: 1.00000
ESPACE	: 300.00000
UNITE	: 0.10000

T0082613PL

LHCT,TCP2_PROTOCOL,T008



Catherine.Magnier@cern.ch
DATE: 31-AUG-2005 09:13:11
EUCLID: T0082613PL

TYPE	: PLAN
VERS EUCLID	: E32.4000 MODIF:E32.4000
MACH-OUVR	: LARGE HADRON COLLIDER
ACTIVITE	: INSTRUMENTATION FAISCEAU
FONCT-UTIL	: COLLIMATEUR
DESIGNATION	: BANC DE MESURE COLLIMATEUR-SOL2
CODE EQU-BAT	:
REMARQUES	:
	:
	:

Tests to be carried out at CERN for provisional acceptance (LHC-TCS-CI-0001)

- Collimator flanges open:

  a. Visual inspection of free beam path for full open and full closed position. Measurement of maximum and minimum gap

  b. Visual inspection of the jaw surface.

  c. Visual inspection of the RF fingers.

  d. Verification of switch positions and signals.

  e. Test for maximum jaw tilt.

- Collimator under vacuum:

  a. Measurement of vacuum pressure.

  b. Check for mechanical range of movements.

  c. Check of temperature sensors.

  d. Test for automatic retraction.

Reception / Manufacturing of collimators Build. 252