CONCEPTUAL SPECIFICATION

INJECTION PROTECTION MASK

[LHC-TCLIM]

Equipment/system description
The TCLIM is a fixed mask upstream of the superconducting matching section quadrupole Q6 in IR2 (right side) and IR8 (left side). In case of injection kicker (MKI) malfunctions leading to beam impact on the auxiliary injection protection collimator TCLIB, the mask is required to sufficiently absorb secondary showers from the TCLIB such that it prevents damage to the Q6 and other downstream equipment. The protection has to be ensured for all HL-LHC and LIU beam parameters. It is to be evaluated if the present TCLIM design can be retained or if a new design is required, possibly with a different length and material.

<table>
<thead>
<tr>
<th>Layout Versions</th>
<th>LHC sectors concerned</th>
<th>CDD Drawings root names (drawing storage):</th>
</tr>
</thead>
<tbody>
<tr>
<td>V 1.1</td>
<td>LSS2/LSS8</td>
<td>LHC-TCLIM to be created by S. Chemli</td>
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</tbody>
</table>

TRACEABILITY

Project Engineer in charge of the equipment
J. Borburgh

WP Leader in charge of the equipment
J. Uythoven
Main Points

- Fixed mask to protect Q6 and other downstream elements at the other side of the IP where injection takes place, in case of injection failures
- Takes the shower from the TCLIB
- Presently made out of C
- Studies ongoing if changes are required – together with TDIS – TCLIA – TCLIB protection studies
Layout

Jan Uythoven, WP 14 Concept. Spec. review