

Reduction of the extent of the radiographic examinations of the longitudinal welds

Grounds: Technical Specification LHC-MMS/98-198 Rev. 2.0, more particularly Annex B33 regarding safety tests

Prerequisites: There must be 5 consecutive cold masses with not more than 2 % of defects (meaning defects to repair, all categories included, according to specified levels of acceptance)

Level of acceptance: As a reminder, the levels of acceptance of the defects in the weld are as per category “C” of standard EN 25817. Reference to CERN letter LHC-MMS AT-MAS 6947 (March 2003) for the change from class “B” to class “C”

The proposal for the transition phase

A transition phase covering at least 35 cold masses according to the following program is proposed:

1. Cold mass N° 1 to 5 (5 cold masses)

One out of 5 shall be submitted to extended examination, 100 % of both welds, including the production test plates

The remaining 4 shall be submitted to partial examination, 1.5 m at both ends of each weld, W1 and W2, plus the production test plates

2. Cold mass N° 6 to 15 (10 cold masses)

One out of 10 shall be submitted to extended examination, 100 % of both welds, including the production test plates

The remaining 9 shall be submitted to partial examination, 1.5 m at both ends of each weld, W1 and W2, plus the production test plates

3. Cold mass N° 16 to 35 (20 cold masses)

One out of 20 shall be submitted to extended examination, 100 % of both welds, including the production test plates

The remaining 19 shall be submitted to partial examination, 1.5 m at both ends of each weld, W1 and W2, plus the production test plates

Condition of applicability for the series specification

For the series specification¹ to be applicable, the results of all the checks carried out during the above transition phase shall be satisfactory.

If, for any reason, there is an operational incident (incidental stop or erratic functioning of the shielding gas feeder for examples) during the execution of the welds, the cold mass concerned

¹ The series specification requires a full inspection of both longitudinal welds of one cold mass in 20 (a set of 20 cold masses makes a batch), plus a full inspection of the production test plates of the remaining 19 cold masses of the batch. In the above, this program is called the standard program.

shall be fully inspected. This cold mass shall not be counted as part of the standard inspection program, i.e. it shall be inspected on top of the standard program.

A cold mass that is welded with new filler wire, new welding parameters (following modification of the welding laws for example) or more generally being concerned by any modification of the welding conditions shall be fully inspected on top of the standard program.

When there are extended defects observed on the entire length of the production test plates (extended lack of penetration and/or lack of fusion, alignment of porosity, repetition of cracks, ...), the radiographic examination shall be extended to the effective part of the weld (meaning in the magnet – “partie utile”). This does not apply when the defects observed are localized (meaning “short”).