

## **"What you get" - injection and dump system**

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The performance of the LHC injection and extraction system and the main problems encountered during 2012 operation are described. Special attention is dedicated to the stability of the transfer lines, steering frequency, sensitivity to beam and machine changes, injection protection collimators setup and the consequent impact on operation and possible machine protection issues. The improvements foreseen for operation with injection of up to 288 bunches after LS1 in terms of stability, availability and safety are explored.

The modifications foreseen to strengthen the reliability of the LHC beam dumping system and the new TCDQ hardware for operation at 6.5 TeV with high intensity beams are introduced.