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Protection strategy and quench study of MCBXF magnets

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Nested combined orbit correctors are needed for the upgrade of LHC. They are developed at CIEMAT, in collaboration with CERN in the framework of HL-LHC project. There are two types of magnets, so-called MCBXFA and MCBXFB, with different lengths (2.5 and 1.5 m, respectively), but sharing the same cross section. Coils of both magnets are wound with the same Rutherford-type NbTi cable, composed of 18 strands of 0.48 mm diameter, insulated with braided glass fibre sleeve.

Quench propagation has been computed with Roxie and Squid (CIEMAT in-house developed code). Results have been compared with the power tests performed on the prototypes. Different strategies of magnet protection have been analysed. Finally, damp resistors will be used for both magnets.

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