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Thermodynamic Properties of the Superconducting Dipole Magnet of the SIS100 Synchrotron

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The heavy ion synchrotron SIS100 is the core facility of the international FAIR project at GSI in Darmstadt. The magnet system of the synchrotron will operate with a high cycle frequency up to 1 Hz. The magnet coils are made of a hollow NbTi composite cable cooled by forced flow of two phase helium. The dynamic heat losses in the magnets caused by fast ramping provide the major part of the head load to the cryogenic system of SIS100. Recently the first series dipole magnet was produced and is being intensively tested at the cryogenic magnet test facility at GSI. We present the status of these tests together with the obtained operation characteristics like a cool down and training behaviour, dynamic heat release and mass flow rates.

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