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Iseult-Neurospin 1500 A Currents Leads: Conceptual and Experimental Results

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In the framework of the French-German project Iseult, we chose to design the 4.5 K vapor cooled current leads of the 11.75 T MRI magnet using a burn-proof approach, i.e. they are able to withstand a 3-hour current slow dump without any active cooling. This constraint led us to select brass instead of pure copper, resulting in higher mass and thus in higher thermal stability. The drawback is a slightly higher cryogenic consumption. We present here the design studies of those currents leads and compare their theoretical characteristics with the experimental results obtained during the test campaigns at CEA-Saclay.

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