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P2.088 Influence of the flow imbalance among the cooling channel on the magnet performance

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Cryogenic circuit for cooling of a superconducting magnet like tokamak has a lot of branch and has to be designed efficiently considering the conductance for cooling. The KSTAR PF cryogenic circuit has one hundred eight cooling paths for fourteen superconducting magnets and CS structure. The five cryogenic valves has been installed to provide the same mass flow rate to cooling channel of magnet. The individual flow imbalance test has been performed one of the manufacturing process and it was below 10 %. But, we knew that the flow imbalance increased during magnets operation by installed of 10 mass flow rate meters in front of magnets additionally. In this paper, this flow imbalance will be applied to the KSTAR PF circuit modeling, which has been developed using SUPERMAGNET code, and the effect will be compared with the experiment data.

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