

Completion of DC 1 MV power supply system for ITER neutral beam test facility

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Technologies of DC 1 MV insulation with water and DC 1 MV vacuum insulation have been developed. As the result, manufacturing of DC 1 MV power supply components to produce 1 MeV negative ion beams have been completed for the ITER neutral beam test facility (NBTF). For the transmission line (TL), insulating tubes for hot and cooling water have been developed by clarifying resistivity of high-temperature water and properties of insulation material with water absorption. Based on these results, the integrated configuration of the TL has been established through electrical and thermo-mechanical analyses. For the HV bushing, 1 MV vacuum insulation was achieved based on the empirical scaling for the vacuum insulation. Then, all components have been manufactured and shipped to the NBTF site in 2017. The installation is on-going toward the integration test in 2018. These achievements contribute to push forward with a start of the NBTF operation and a realization of the ITER NB.

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