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## Manufacturing of ITER PF2-6 Coil

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The ITER PF system consists of 6 ring coils and it provides magnetic field for plasma shaping and position control together with the Central Solenoid (CS) coils. It needs to operate in a fast pulse mode, leading to induced voltages of up to 14 kV on the coil terminals during operation. The cable-in-conduit conductors (CICC) with Niobium-Titanium (NbTi) superconducting material are used in the coils. All coils are fabricated by stacking 6 to 9 double-pancakes wound by two-in-hand winding scheme.

ITER PF magnets are supplied in-kind by Domestic Agencies (DAs) and PF2-6 will be procured by European Domestic Agency (EUDA). Regarding PF6 coil, EUDA has decided to outsource the manufacture of PF6, which, as the smallest of the coils, could be transported along the ITER itinerary with only a minor widening of the original route. Finally, it was decided to construct PF6 in the Chinese Academy of Science Institute ASIPP with an International cooperation agreement.

Since the PF coil design review for PF2-6 coil in 2009, the new design inputs have been requested to increase the reliability of the PF coil components such as helium inlet, the terminal and joints of the PF coils. As a qualification activity, the component qualification has been carried with corresponding mechanical and the electric tests at room temperature, 77 K and 4.2 K. In addition, the PF dummy double pancakes and winding pack mock ups are fabricated to demonstrate the preliminary manufacturing process. Finally, PF5 and PF6 coils have been successfully manufactured and the performance of the coils are demonstrated by the cold tests.

This paper presents the fabrication of PF magnet components as well as manufacturing process and cold test of ITER PF5 and PF6 Coil.

The views and opinions expressed herein do not necessarily reflect those of the ITER Organization

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