

# The Latest Status of the Construction and the Preparation for Experiments of JT-60SA

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JT-60SA (Super Advanced) is a tokamak upgraded from JT-60U [1]. The maximum plasma current ( $I_p$ ) is 5.5 MA, the maximum toroidal field ( $B_t$ ) is 2.2 T and the maximum heating power is 41 MW for 100 s. All the toroidal and poloidal coils are superconducting coils. The JT-60SA project has been pursued under the Broader Approach Satellite Tokamak Programme jointly implemented by Europe and Japan, and under the Japanese national program. The objective of the project is to support researches on ITER and develop physics and engineering basis towards DEMO reactor. Manufacturing of components has been underway for several years both in Japan and EU. The construction of the machine has been ongoing at the JAEA Naka site since January 2013. Nine vacuum vessel sectors forming 340° structure in the toroidal direction were already placed on the cryostat base in January 2015. Three out of six equilibrium field (EF) coils were completed and already placed on the cryostat base as well. Winding of two of the rest three EF coils has started at the Naka site. Winding of six out of eighteen toroidal field (TF) coils has started in EU. Manufacturing of the auxiliary system, such as power supplies, cryogenic system are also in good progress. The quench protection circuit for the superconducting coils was manufactured in EU and already delivered to the Naka site. The cryogenic system will arrive from EU soon. The latest status of the construction and development, for example heating and current drive (H&CD) systems, will be presented. Development of the Neutral Beam (NB) and Radio Frequency (RF) H&CD system for 100 s injection leads to steady state injection capability for DEMO. In parallel to the engineering works, research activities in preparation for the JT-60SA experiment have been underway in wide collaboration between Japanese and EU researchers. And the JT-60SA Research Plan has been published and updated periodically [2]. Status of the research collaboration in preparation for the JT-60SA experiments will be reported as well.

## Reference

[1] Y. Kamada et al., Nucl. Fusion 53 (2013) 104010.

[2] JT-60SA Research Plan v3.1, [http://www.jt60sa.org/pdfs/JT-60SA\\_Res\\_Plan.pdf](http://www.jt60sa.org/pdfs/JT-60SA_Res_Plan.pdf).