

DTT: Overview and Status of the Project

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DTT, Divertor Tokamak Test facility, is one of the largest nuclear fusion facility under construction in Europe after ITER. Its mission is to provide an integrated nuclear fusion environment where to test power exhaust strategies useful for the first nuclear fusion power plant. It is a fully superconducting tokamak capable of confining deuterium plasmas with high flexibility with respect to shaping and strike point sweeping. Maximum plasma current of $I_p = 5.5$ MA and toroidal magnetic field of 6 T at the plasma center makes DTT in a position relevant for the present DEMO design. In late 2019, a consortium has been established with the aim at translating the theoretical and technological knowledge of the partners in the design, in the construction and subsequent experimental management and implementation of the Divertor Tokamak Test machine. To the DTT consortium have finally adhered ten partners representing the leading laboratories and universities involved in nuclear fusion in Italy, and the largest Italian oil company. One of the first activities concerned the development and start-up of the project coordination structure. Subsequently the Integrated Project Team started the engineering design phase with the aim at keeping the maturity of the different DTT systems and components so to guarantee the respect of the challenging schedule of construction. This effort led the DTT team to the completion of the design of the systems in critical path in late 2021 and hence to the start of procurement activities. Specifically, the procurement concerning the toroidal field coil system, including power supply and protection, commenced. In the course of 2022 several other procurements will be launched: vacuum vessel, thermal shield and cryostat base just to mention a few. In this paper an overview of the project, aimed at highlighting the attractiveness as an experimental facility for the design of future nuclear fusion power plants, and the status of procurement activities are reported.