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THE DIVERTOR TOKAMAK TEST FACILITY:
MACHINE DESIGN, CONSTRUCTION AND COMMISSIONING

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Abstract

The Divertor Tokamak Test facility (DTT) has been conceived to tackle the power exhaust issues in integrated reactor relevant conditions, close to those of ITER and DEMO. To accomplish its mission, DTT has the flexibility to investigate several magnetic configurations and assess different divertor solutions. DTT (major radius R=2.19 m, minor radius a=0.70 m, magnetic field on plasma axis B_t=5.85 T, plasma current I_p=5.5 MA and pulse length 100 s) will be equipped with 45 MW of additional heating to the plasma (32MW of Electron Cyclotron (EC) waves at 170 GHz, 8MW of Ion Cyclotron (IC) waves at 60÷90 MHz and 10MW of Negative Neutral Beam Injector (NNBI) at 510 keV). The neutron production is significant ($1.5\cdot10^{17}$ n/s) for a D-D machine. Although most of the tokamak components' design has benefited from the ITER design and R&D, due to its compactness, DTT presents many engineering challenges. These have been addressed thanks to a careful integration activity that allowed to perform in parallel the design of all the tokamak components. Special attention has been devoted to the remote handling compatibility of the in-vessel components, firstly because the human intervention will be restricted relatively soon after the start of the machine exploitation, and then to guarantee the necessary availability that an experimental facility shall possess. The paper will address the status of the DTT construction and the plan for its assembly and commissioning.

1. INTRODUCTION

The DTT tokamak is an experimental facility under construction at the ENEA Research Center in Frascati, Italy. Its scope is to provide reactor relevant conditions for the testing of the power exhaust and in particular of the divertor systems. To this aim, DTT has been designed with many features in common with ITER but it is also characterized by a large degree of flexibility in the magnetic configurations that makes it the ideal test bed for any future tokamak reactor [1]-[2].

DTT will quickly reach relevant operating conditions thanks to a set of additional heating systems available from the start of the operation and capable of injecting 16 MW in the plasma [3]. For this reason, all in-vessel components will be assembled and connected to the water-cooling system from the first day of operation. With this philosophy, no major updates are expected in the tokamak except for the out-vessel systems that will be added in the course of exploitation. The consideration of the water-cooled in-vessel components from the beginning of the design has posed several constraints to the integration activity. In this respect, the design of the remote handling systems, that will play a fundamental role in the tokamak operation to ensure an effective availability of the systems, was burdened by the difficulty of proceeding in parallel with the definition of the in-vessel components. Construction activities have started from the superconducting magnet system. Similarly, the construction activities of the power supplies of the superconducting and normal conducting magnet systems have started. Attention will now be transferred to the vessel and out-of-vessel components whilst the plasma facing components complete the design verification, by using suitable mock-ups, and approach the manufacturing activities as well.

Since assembly must be completed quickly, once the tokamak building will be available [4], to ensure operations begin in the next early years, it has been decided to launch the assembly tender process in the current year. This activity will be divided into three phases: the first dedicated to the final design of the assembly procedures and related equipment. The second, with the equipment fabrication, will consist in the qualification of the assembly processes to validate procedures and tools and training of the personnel. The final phase, with all the components available on site, includes the DTT final assembly in two shifts and it is expected to be completed in three years.

In the following sub-sections, the status of the main procurement and design activities of the tokamak sub-systems is reported.

1.1. Superconducting Magnet system

The superconducting magnet system [5] consists of the following subsystems: i) Toroidal field (TF) magnets; ii) Poloidal field (PF) magnets; iii) Central solenoid (CS) magnets; iv) Shared magnet components; v) Cryogenic system.

The 18 T, D-shaped, Nb_3Sn magnets are designed to produce 5.85 T at the plasma major radius in vacuum environment, resulting in a peak magnetic field of 12 T on the conductors of the straight leg, similarly to ITER. They are shall operate in steady state conditions and their design has been verified with respect to plasma instabilities of all three families of reference scenarios (single null, XD, negative triangularity). Having verified the stability of the conductor after 3000 cycles in SULTAN facility, the plan is to discharge the coils every weekend in order to limit power consumption when the facility is in standby mode. The supply of the Nb_3Sn material has been finalized with Kiswire Advanced Technology Co., Ltd., in Korea, while the manufacturing of the cable-in-conduit conductors is currently underway by ICAS in Italy and is projected to conclude by late 2025. The winding assemblies are presently being constructed at ASG Superconductors in La Spezia, the identical facility utilized for the production of the ITER TF winding assemblies. The manufacturing of these winding packs (WPs) is advancing as planned and is anticipated to be finished by the end of 2026. Following their completion, the winding packs will be temporarily housed at ASG, awaiting the arrival of the external casing components and the subsequent integration process. FIG. 1 shows the first three winding packs, after having passed final acceptance test including Paschen test and He leak test, waiting for their insertion in the casing structure. All the qualification activities associated to the integration into casing activity have been already completed and the tooling for the insertion of the WP into the casing have been assembled. The contract, signed with De Pretto industries in Italy, for the procurement of the casing components has been started in 2025. With the delivery of the first casing components set at the beginning of 2027, the first TF module will be delivered to DTT site by ASG in the second half of 2027. Last TF will be delivered by the beginning of 2029, in advance with respect to planned assembly in the tokamak hall.

FIG. 1 WP-01, WP-02 and WP-03 maintained in a storage area waiting for the start of their insertion in the casing structure

A similar path is being followed for the manufacturing of the Poloidal Field (PF) coils. The 6 coils are almost identical in pair with PF1 and PF6, the smallest one located respectively on the top and on the bottom of the TF magnet system made with Nb_3Sn, and the remaining four in NbTi. The NbTi strand for the realization of PF2-PF5 has been already manufactured and delivered to DTT by Furukawa, Japan. The contract for the manufacturing of the Nb_3Sn has been signed, instead, only in 2025 with Kiswire Advanced Technology Co., Ltd., in Korea, after an unsuccessful contract closed in 2023. It is worth noting that in order to secure the conductor and the following magnet manufacturing, the strand for the PF6 coils is already available.The Central Solenoid (CS) is one of the most challenging components having to produce a flux in excess of 16.2 Wb, in a quite narrow space. Several design solutions have been analysed to limit the operational risk, both from the electric breakdown and the mechanical standpoints. Presently, an experimental confirmation test of the insulation system is under way in order to validate the design for the highest stress areas of the CS and the PF coils. At the beginning of 2025, on the base of risk management considerations it was decided to adopt the pancake winding scheme that has been used in all operating or under-construction superconducting tokamaks to date. To compensate the reduction in available flux caused by this construction choice, it was decided to launch the project of an HTS insert, which, by working at higher magnetic fields than those allowed by LTS materials, will be able to produce a surplus of magnetic flux [7].

In order to assess the superconducting performance and reduce the risk of encountering electrical issues on the insulation during the integrated commissioning, all Nb_3Sn magnets will be tested at full current in the Frascati Coil Cold Test Facility (FCCTF) under construction at the ENEA Research Center. Following the tests, any repairs will be possible before final assembly. Furthermore, the information on the performances will be used to make balancing on the Helium distribution circuits and on the central control system.

The final system in charge of this project area is the cryogenic plant [5]. Most of the plant's subsystems will be housed in existing buildings that previously accommodated parts of the FTU plant, or the machine itself, as is the case for the cold boxes. The final design was completed in 2025 after all loads under the various operating conditions of the plant were reviewed and interfaces were consolidated. The latter, in particular, concerned the auxiliary systems and the buildings. In some cases, the design of the subsystems highlighted the need to make modifications to the existing buildings [4]. These modifications will be implemented in time for the delivery of the plant, whose first components are not expected before 24 months from the signing of the supply contract, which will take place in 2026. The cryogenic plant will be in the same class as those of JT-60SA and KSTAR and will absorb a maximum of 3.5 MW of electrical power, ensuring the absorption of approximately 10 kW of heat loads equivalent at 4.5 K.

1.2. Vacuum Vessel and outer vessel components

The vacuum vessel and outer vessel components area for the DTT facility consists of the following subsystems: i) Vacuum vessel; ii) Thermal shield; iii) Cryostat; iv) Vessel auxiliary systems; v) In-vessel coils.
The design of DTT vacuum vessel, made of stainless steel 316LN, has been characterized by its numerous interfaces with in-vessel and ex-vessel systems. During manufacturing these interfaces must be systematically managed also applying intermediate testing and reverse engineering with suitable compensation members to be adjusted during the assembly phases. The vessel will be subjected to intense stresses during disruptions in operations. For this reason, the vacuum vessel design has progressed to the point of providing a detailed drawing of all its constituent parts, in particular the actively cooled intershell at the double walled structure and the support pads of in-vessel components, satisfying structural integrity verifications under the expected load combinations. The design was validated through a review that involved international experts in the field, who provided suggestions for improvement and emphasized the most critical aspects of both its design and construction. The scope of supply consists of two 170° multi-sectors and one 20° sector, all without ports. The port structures will be installed on site only after the assembly of the 360° torus complex is completed with the thermal shield and the toroidal and poloidal field coils mounted using advanced metrology systems. The supply contract is expected to be signed by the end of 2025. From that date, the delivery of the multi-sectors is scheduled within three years. Once delivered, it will be possible to begin the pre-assembly phases, followed by the final assembly in the experimental hall. The procurement includes a full-scale prototype of the vacuum vessel intershell delimited by the double wall, which will be toroidally extended with beam structures forming a vessel mockup to be used for qualification of in-vessel components assembly.

The cryostat design will be completed by the end of 2025 in preparation for the supply tender in 2026. The component consists of five main elements:

- The cryostat base (CBS), with an approximate weight of 130 tons, whose purpose is to support the entire weight of the machine.
- The lower cylindrical pit (CLP), weighing about 6.6 tons, which serves as a passage for auxiliary systems into the cryostat.
- The cylindrical body (CCB), with a total weight of 55.8 tons, which is divided into three 120° sectors to facilitate assembly operations.
- The top lid (CTL), weighing about 40 tons.
- The port plugs assembly (PPA), which are made up of 53 port closing flanges and support frames that will house the diagnostic and additional heating systems.

The cryostat will be made of 304L austenitic steel and will have a thickness of 20 mm in the cylindrical section, with both vertical and toroidal reinforcement elements at the air side. At the top of the 12 columns that make up the base, seismic isolators will be installed. These are designed to filter the seismic input within the frequency range identified by the geological analyses conducted.

The DTT thermal shield, needed to protect the cryogenic components from the heating of the vacuum vessel or the cryostat, consists of three main subsystems that are depicted in green (Cryostat Thermal Shield or CTS), blue (Port Thermal Shield or PTS) and in orange (Vacuum Vessel Thermal Shield or VVTS) in FIG. 2. The supply contract shall be signed in mid 2026 following the launch of the call for tender expected between 2025 and 2026. This will also take place after the manufacturing contract for the vacuum vessel has been signed. The thermal shield, which covers a surface of about 1500 m^2, consists of a double walled stainless steel 316L structure. The 2 mm shells enclose the half-inch diameter cooling pipes which are in thermal contact with the hot shell (vacuum vessel side) through an intermittent staggered welding. In addition to the cooling pipes, the two shells are separated by proper spacers which provide the necessary structural rigidity. On the cryostat side, the application of a blanket of multilayer insulation will enhance the thermal shielding capability of the actively cooled single walled panels, thereby reducing the heat load to be absorbed by the cryogenic plant. This plant feeds the cooling pipes with gaseous Helium at 80 K.

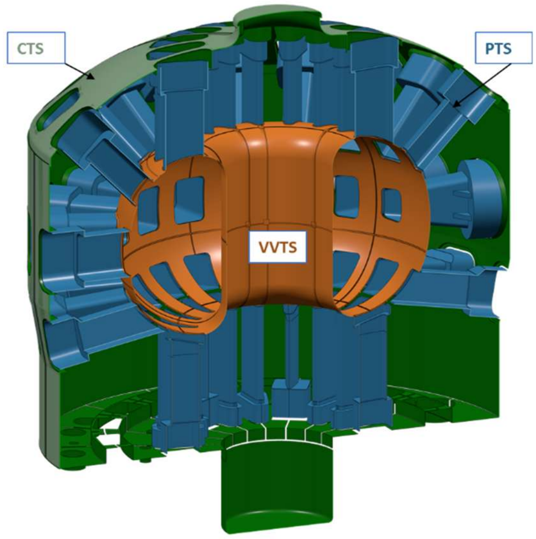

FIG. 2 CAD view of the thermal shield.

Among the various auxiliary systems that characterize the facility, the divertor vacuum system is particularly noteworthy. The project, conducted in collaboration with KIT in Germany, is based on the design developed for JT-60SA, but with the cryopanels arranged vertically inside the vertical lower ports. This layout provides a pumping capacity of 100 m^3/s, which has proven to be adequate for the full-power scenarios considered. The system's modularity allows the 10 cryopanels to be operated in groups of 3 or 4, 6 or 7, or 10 ensuring the necessary control even in lower-power scenarios with less neutral particle production. The cryopanels shall operate at 4.5 K and shall be regenerated daily, for desorbing light gases (helium, hydrogen isotopes) after several pump cycle, at 100K. The project was completed in 2024, and manufacturing qualifications are scheduled to begin in 2026.

DTT will be equipped with 32 in-vessel coils: 5 of which are axisymmetrical and 27 are saddle coils (non-axisimmetrical). The 5 axisymmetrical coils are further grouped into divertor coils and plasma stabilization coils. The 27 non-axisymmetrical coils will be arranged on three levels and are designed to correct error fields resulting from any mounting errors and to mitigate the effect of ELMs. This coil configuration reproduces the scheme hypothesized for ITER, with which it also shares the conductor design. Although smaller in size, the conductor consists of a hollow copper conductor for the passage of cooling water. It is externally insulated with a layer of polymeric insulation and then inserted inside a steel jacket that provides the necessary structural resistance and vacuum boundary. The same conductor is also used in the other axisymmetrical windings. Unlike the saddle coils, however, the axisymmetrical coils will be fabricated on site once the vacuum vessel has been assembled after qualification in the vessel mockup. The three coils underneath the divertor play a unique role in the facility because they are designed to control the position of the strike point on the divertor targets and also perform sweeping to mitigate the incident heat load.

1.3. Power supply system

The power supply systems area consists in DTT of the following subsystems: i) TF power supply; ii) PF power supply; iii) CS power supply; iv) In vessel coils power supply.The procurement of the TF power supply commenced simultaneously with the procurement of the TF coils in 2022. This process was divided into two distinct procurements: the AC/DC conversion unit and the fast discharge units (FDUs) designed for the safe discharge of the coils should a quench occur or in any fast discharge event. Specifically, the converters, which can produce 42.5 kA under stable operation at 100 V and maintain a current fluctuation below 0.1%, was fabricated by JEMA in Spain and has been provisionally installed in the FCCTF. Its purpose there is to energize the coils during their acceptance verification prior to final assembly (refer to FIG. 3).

The FDUs, which employ SiC varistors to linearly reduce the current over 10 seconds, are comprised of three identical units, all manufactured by OCEM Power Electronics in Italy [8]. Only the first FDU has been finalized and already shipped. Its setup within the FCCTF is planned for completion by the end of 2025 to facilitate the facility's commissioning in 2026. The remaining FDU units will be produced and supplied at a subsequent time. The TF power supply and the first FDU will be used not only for the testing of the TF in steady state and fast discharge condition but will be used also in the testing of the PF and CS pulsed scenarios.

FIG. 3 Image of the TF power supply after assembly

The specifications for the PF and CS magnets power supplies has been finalized and the corresponding bidding process is scheduled to be initiated shortly, still within 2025. Since these are both pulsed systems with a maximum operational current in the same vicinity—approximately 30 kA—their configurations share similarities. They rely on supercapacitor modules that enable continuous cycling of charging and discharging throughout the day, thereby minimizing the actual electricity draw from the main power network [9]. Finally, the power supply system for the in-vessel coils encompasses 32 distinct supply units to guarantee the utmost operational versatility for the entire facility. Three separate procurement contracts were awarded during 2024 under the scope of the "Next Generation EU program". The delivery of the 27 non-axisymmetric coils power supplies (with a nominal current of ±2.5 kA and a nominal voltage of ± 400 V) are approaching conclusion, with shipment anticipated by the close of 2025. In a related effort, the power supply units for the axisymmetric divertor (with a nominal current of ±5 kA and a nominal voltage of ± 600 V) and vertical stabilization coils (with a nominal current of ±6 kA and a nominal voltage of ± 4 kV) are being completed at OCEM Power Electronics in Italy and shall be delivered at the beginning of 2026.

1.4. Plasma facing components

As already mentioned, all plasma facing components of the DTT facility shall be actively cooled from the start of operation. The design of the first divertor set has been completed [10][11] after the qualification of the plasma facing component and cassette structure design [12]. It concluded also the definition of the water-cooling parameters for the auxiliary system whose integration in the CAD model has been also finalized (see FIG. 4). It is worth noting that among the 54 divertor modules, 4 will be fed by a dedicated cooling system (capable up to 15 MPa and 250 °C of inlet temperature) for testing specific divertor liquid metal technologies. The qualifications performed on small divertor target mock-ups in high heat flux testing facility allowed to assess the target design in terms of W monoblock size [13] and allowed to confirm the capability of the present design to resist to a heat load up to 20 MW/m^2 without any damage at the plasma facing surface and at the joint between the W monoblock and the cooling pipe. The activity is now focusing on the fabrication of the full-scale mock-up of the divertor targets using the Hot Radial Pressing (HRP) technique developed at ENEA. This will allow to set-up the fabrication procedures of the 1242 target units of the DTT first divertor whose manufacturing activity will start in 2026. In parallel, also the procurements for the base materials (W monoblock and CuCrZr pipes) are about to start within 2025, as well as the procurement of 54 cassette structures made of 316L(N) steel.

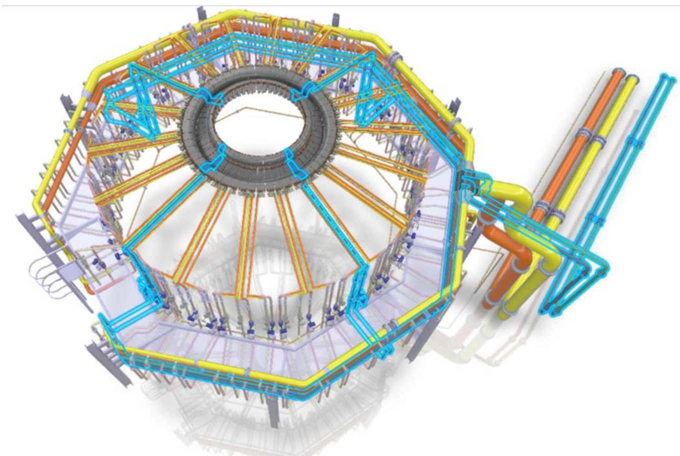

FIG. 4 CAD model of the DTT first divertor and associated water cooling system. Tests modules and related cooling system is highlighted.

The DTT First Wall has been designed with a poloidal segmentation aimed at preserving the maximum volume in the vacuum chamber to accommodate the different plasma scenarios [10]. It is water-cooled with a total mass flow rate of 380 kg/s at 4 MPa and 60 ◦C which is able to dispose of 32 MW of power (70 % of the total heating power) with a 20 ◦C increase of water temperature. Under nominal conditions the mass flow rate is split as follows: 130 kg/s to the Inboard First Wall (IFW), 110 kg/s to the Top First Wall (TFW) and 140 kg/s to the Outboard First Wall (OFW). However, different coolant distributions can be set in order to optimize cooling performance according to operating scenarios. Three distinct design choices have been considered for different FW modules. In particular, the IFW and TFW are made of bundles of stainless-steel pipes coated with W (TFW and standard IFW) and CuCrZr pipes armoured with W nonoblocks for the limiter part of the IFW. Finally, for the OFW a box structure design with tiny (10 x 10 mm) cooling channels, made by additive manufacturing and covered with a layer of W, was chosen to simplify manufacturing through modularity. Having completed the design, now the activity is focused on the qualification phase through the use of small mock-up that will be successively tested [14] in heat flux facilities before moving to the subsequent manufacturing phase.

1.5. Diagnostics

The plasma diagnostics area has recently been the subject of a significant effort aimed at closing the conceptual design for the various diagnostic systems foreseen to be operational in the first two planned implementation phases, and solving integration issues for equipment planned in the third phase, namely: i) integrated commissioning and start of operations; ii) upgrade for increased additional power at 25 MW; iii) advanced experimental phase at full power.

To this end, the designs were reviewed by an external review panel composed of international experts, some of whom had previously contributed to the DTT Research Plan to ensure coherence of the defined diagnostics equipment with the objectives hypothesized therein, as well as ensuring the required protection and control functions for the machine commissioning. The panel created a priority matrix that DTT subsequently used to allocate resources. However, the initial design effort involved the full diagnostic equipment for a total of 77 diagnostic techniques, to avoid integration and allocation issues - for example, due to the constraints imposed by the plasma facing components water cooling system - that could prevent the future installation of the full power diagnostic equipment. This exercise produced the configuration model shown in FIG. 5, which displays the allocation of diagnostic systems not only on the vessel but also inside the ports. In this case, the "port-plug" scheme used in ITER was followed to define the spaces and potential upgrades during the facility's development phases.

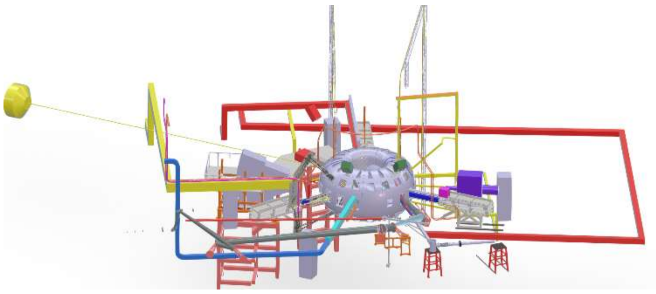

FIG. 5 CAD model of the diagnostics assembly

Furthermore, the lines of sight and the allocation of acquisition systems in the rooms adjacent to the experimental hall allowed for the preparation of the plant layout, also in view of the upcoming assembly phase, whose contract is about to be launched. In addition to the purely engineering aspects, this initial phase allowed for freezing the requirements for the diagnostic systems in terms of resolution, sensor dimensions, number of cables, and their penetrations through the vessel ports and building walls.

The engineering design and procurement phase for the systems is therefore about to begin. The goal is to acquire and lab-test the systems that need to be installed on the vessel before the start of the machine assembly phase in the torus hall, while the systems to be installed in the port plugs will follow closely behind. In this case, the approach adopted is to assign the coordination of each port plug to the system that has the largest footprint at first plasma.

Specifically, the port plugs will be supplied as part of the cryostat delivery and will have a lattice structure and a flange with several sub-flanges to allow for the autonomous management of each diagnostic system. Excluding the vertical ports, which are mainly intended for the passage of cables and pipes and, in the case of the lower ports, for housing the divertor pumping systems with cryogenic panels, and those associated to the plasma heating, the remaining 40 lateral ports (port 3 of sector 6 is missing to make room for port 3 of the NBI, which is mounted in sector 7 but inclined by 35° with respect to the radial direction) will need to be equipped with diagnostic systems. Once the diagnostic systems have been assembled and electrically tested, the port plugs will be transferred to the assembly contractor, who will mount the auxiliary systems (cooling circuit and baking system) and, after testing in a dedicated vacuum chamber, they will be mounted on the machine.

1.6. Remote Handling systems

When human intervention is no longer permitted due to excessive radiation, the availability of the DTT facility will be ensured through the use of remote maintenance systems. The ability to replace all divertor modules multiple times, to meet specific requests for divertor shape or plasma facing materials, is a key design requirement to be performed in the shortest possible time. To achieve this, DTT is investing significant resources in the realization of Remote Handling (RH) systems, which will be used from the initial assembly phases of the machine. The DTT RH system includes two robotic arms (HYRMAN) for the maintenance of the first wall and the Ion Cyclotron Heating (ICH) antennas, and three Cassette Multifunctional Movers (CMM) for handling the divertor. To ensure the effectiveness and reliability of these RH systems, a Remote Handling Training Facility (REMHAT) is being constructed at the CeSMA laboratory of the University of Naples Federico II [16][17]. This facility will play a central role in validating RH tools, RH procedures and equipment compatibility before their deployment in the actual DTT machine and in training the dedicated personnel. It is equipped with a full-scale replica of a 110° sector of the DTT vacuum vessel (VV), including mock-ups of the divertor, first wall, and associated piping. This level of detail allows for comprehensive testing and validation of RH systems under realistic conditions.

The contract for the realization of the mockup has been signed with MONSUD, Italy and the completion is expected between the end of 2025 and the beginning of 2026. Similarly, two contracts for the final design and manufacturing of the Hyrman and CMM RH systems has been placed to OCIMA, Italy. Both robots have completed the manufacturing readiness review step and the relative construction is progressing. FIG. 6 shows the first tests of the joint 2 prototype of the HYRMAN system successfully completed in OCIMA.

FIG. 6 Image of the Joint # 2 prototype at the qualification tests in OCIMA premises

1.7. Integration, assembly and commissioning plan

The optimization of the assembly of the machine and the auxiliary system has been performed to maintain the schedule of the construction and commissioning of DTT. Sequence, tooling, equipment and the optimization of the different phases have been done taking particular care of the planning needs. Detail technical specification fixing the sequence, tooling, pre-assembly and assembly procedure is almost complete. Particular care has been put also in the preassembly phase when crucial process, like port welding and the instrumentation of vacuum vessel, have to be fully qualified. The call for tender for the assembly and commissioning will be launched by the end of the 2025. The contract will be divided in four main steps: i) the engineering phase during which the assembly tooling will be designed in detail; ii) the procurement of the tooling and materials; iii) the qualification of the special process; iv) the assembly of the machine in the experimental hall (see FIG. 7).

According to the previous plan and thanks to the planned availability of all components at the DTT site at the start of the assembly phase, the assembly time up to the integrated commissioning is estimated in less than 30 months with 20% of contingency assuming 2 shifts per day and a shift on Saturdays for testing activities. At the completion of the assembly, the integrated commissioning will start. This will pass through the first baking operation, followed by vacuum pumping. In case no leaks will be found, after an assessment of the Paschen tightness in the cryostat components, the cool down of the thermal shield and of the superconducting magnets will start. The first cool down will be performed at relatively low speed and should last one month. The charging of the magnets will then start, first the TF followed by the PF and CS at a limited current. The exact sequence and level of current feeding during integrated commissioning will be defined with the results of the cryogenic tests foreseen in the FCCT facility. Concluded the commissioning of the cryostat components, with the TF coils kept at half of their nominal current, the attention will be devoted to the commissioning of the water-cooling system and of the in-vessel components. Boronization using the Electron Cyclotron Heating will then be executed. Special attention will be devoted to the magnetic diagnostics for the reconstruction of the magnetic field. Also, in this phase the effectiveness of the error field correction and of the axisymmetric coils shall be evaluated. It will be then the time for the verification of the

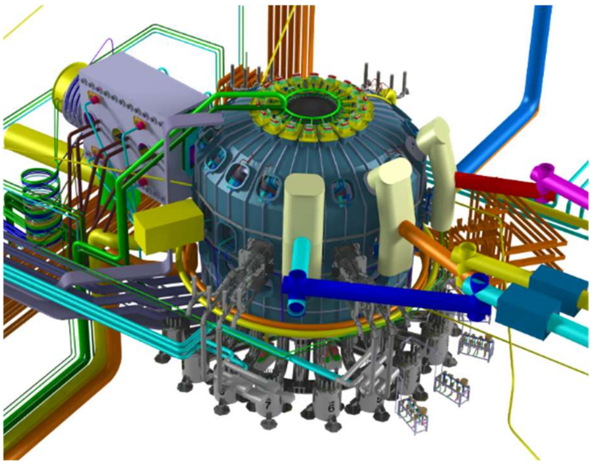

FIG. 7 CAD image of the tokamak assembly

fueling and pumping systems followed by a first plasma EC assisted. The expected time for the integrated commissioning is in the range between 8 and 12 months. It will be followed by the operational team with the support of the team in charge of the construction. Ideally, the facility exploitation will start immediately after the first plasma.

2. CONCLUDING REMARKS

The construction of the Divertor Tokamak Test facility is progressing. The TF superconducting magnets are in an advanced manufacturing phase, the other will be procured soon. The contract for the realization of the vacuum vessel is about to be signed and delivery of the main components is expected no later than three years from the signature. Cryostat and thermal shield have reached a maturity that will allow to proceed soon with the corresponding procurement. Power supply of the TF and in-vessel coils have been almost completed whilst the design of the PF and CS coils power supply, including innovative, for the fusion community, approaches has been completed and the procurement phase is about to start. Plasma facing components have been extensively characterized to assess the design choices and the manufacturing activity is starting in order to allow their assembly from the beginning of DTT operations. Conceptual design and integration of the plasma diagnostics have been completed and, thanks to the definition of priorities in accordance with the research plan, proper allocation of resources for their realization has been secured. Remote handling is progressing rapidly with the manufacturing of the two robotic systems, one for the maintenance of the first wall and the other for the divertor, that will be available already in the assembly phase. Also, a dedicated remote handling training facility is under construction to assess the RH procedures before their use in DTT. Assembly contract will be launched soon in order to design and procure the assembly tooling, complete the qualification of the special processes and proceed with the assembly inside the experimental hall efficiently when the experimental hall will be available and all the components will be delivered.

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