

L&T Press Release

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L&T Wins Prestigious Order for Manufacture of Cryostat for International Fusion Energy Project

Mumbai, September 12, 2012: L&T Heavy Engineering has bagged a prestigious order for manufacture & installation of ITER's Cryostat for the world's largest experimental Thermo-nuclear Fusion Reactor, coming up in Cadarache, south of France.

L&T's scope includes detailed engineering, procurement, manufacture & installation of the Cryostat. This large-value order will be executed over a period of 8 years.

In view of the very large dimensions involved, 54 modules of the Cryostat will be dispatched by L&T Heavy Engineering from its Hazira facility to France. Module pre-assembly will be done in a temporary workshop to be erected close to the site located in the France. The scope includes final assembly of the Cryostat and installation at its final location in the Tokamak Reactor Hall.

Once completed, ITER will demonstrate the infinite potential of fusion technology to generate energy. The highlights of the fusion process used in the reactor are - a) High Efficiency - output power will be ten times the input, b) Clean Energy - No release of carbon dioxide or radioactive wastes, and c) Abundant Fuel - Hydrogen isotopes - deuterium & tritium, which can be extracted from sea-water.

The Cryostat will be the largest vacuum vessel, a stainless steel structure surrounding the Tokamak & super conducting magnets of ITER. It constitutes the outermost boundary of the reactor, providing a super-cool, vacuum environment for the inner cryogenic systems and acts as a secondary confinement barrier for the reactor. It is designed to bear the Mechanical, Thermal and Seismic loads of the reactor and absorbs the forces arising from fusion and magnetic forces. All systems which connect to the reactor will pass through the Cryostat.

The Cryostat is designed as a fully welded cylindrical vacuum/pressure chamber with overall dimensions of 29.4 meter Diameter, 29 meter height and a finished weight of 3850 metric tonnes. It is constructed of stainless steel with thicknesses ranging from 50 mm to 250 mm. For fabrication, advanced, specially developed, automated, all-position narrow groove gas tungsten arc welding technique will be deployed at the factory and site.

ITER will be a glowing example of truly global collaboration with the best of scientific and engineering talent from several countries pooling resources to offer a virtually unlimited source of clean energy to build a greener planet. L&T is proud to be associated with the critical Indian contribution to the prestigious ITER project, through the ITER-India.

Background:

Larsen & Toubro is a **USD 12.8** billion technology, engineering, construction, manufacturing and financial services conglomerate, with global operations. It is one of the largest and most respected companies in India's private sector. A strong, customer-focused approach and the constant quest for top-class quality have enabled L&T to attain and sustain leadership in its major lines of business over seven decades.

ITER will be the world's largest experimental facility to demonstrate the scientific and technical feasibility of fusion power. ITER is an international collaborative project involving "in-kind" contributions from Seven Parties (China, European Union, India, Japan, S.Korea, Russia and U.S.A.). ITER is being built at Cadarache, South of France. India is one of seven partners and is responsible to supply systems and equipment for ITER.

ITER India, which is a part of the Institute for Plasma Research (a DAE Unit) located at Gandhinagar, Gujarat, is the nodal agency responsible for the Indian portion of the project.