

# Press Release

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**Comments:**

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## Contract for ITER Cryostat awarded to Larsen & Toubro Ltd

The Cryostat for the ITER experimental fusion reactor currently under construction in Southern France will be the world's largest high-vacuum pressure chamber ever built. On 17 August, the contract for the manufacturing of the 3800 ton steel-structure was signed with the Indian company Larsen & Toubro (L&T) Ltd.

The Cryostat forms the vacuum-tight container surrounding the ITER vacuum vessel and the superconducting magnets - essentially acting as a very large refrigerator. It will be made of stainless steel with thicknesses ranging from 50 mm to 250 mm. The structure will have to withstand a vacuum pressure of  $1 \times 10^{-4}$  Pa; the pump volume is designed for 8,500 m<sup>3</sup>. Its overall dimensions will be 29.4 meters in diameter and 29 meters in height. The heavy-weight will bring more than 3800 tons onto the scale - making it the largest vacuum vessel ever built out of stainless steel.

china

eu

india

japan

korea

russia

usa

The Cryostat will have 23 penetrations allowing internal access for maintenance, as well as over 200 penetrations—some as large as four metres in size - providing access for the cooling systems, magnet feeders, auxiliary heating, diagnostics, and the removal of blanket and parts of the divertor. Large bellows are used between the Cryostat and the vacuum vessel to allow for thermal contraction and expansion in the structures.

India, being one of the seven Members of the ITER project, is in charge of procuring the Cryostat. On 17 August, Shishir Deshpande, Project Director of ITER-India and Anil Parab, Vice President of the L&T Heavy Engineering division, signed the contract for manufacturing of the ITER Cryostat.

The design of the ITER Cryostat represented a huge international endeavour involving engineers and technicians from both the ITER Organization and the Indian Domestic Agency. "The Cryostat is an essential part of the ITER machine. Seeing this huge component taking shape in the factory is certainly important and encouraging news. It means that the ITER project has entered a decisive phase." ITER Director-General Osamu Motojima said.

The Cryostat will be manufactured by the Heavy Engineering division of L&T at its Hazira plant, near Surat in Western India, in the state of Gujarat. It will be dispatched in 54 modules to the ITER site in Cadarache, as it cannot be transported in its entire size. Pre-assembly of the Cryostat modules will be done in a temporary workshop at the ITER site and then transported to the tokamak pit where they will be welded together by using the



advanced “narrow groove all position gas tungsten arc welding technique”.

Mr. M.V. Kotwal, Member of L&T board and President of L&T Heavy Engineering stated: "L&T is proud to be part of this mammoth global collaborative research to build a greener planet."

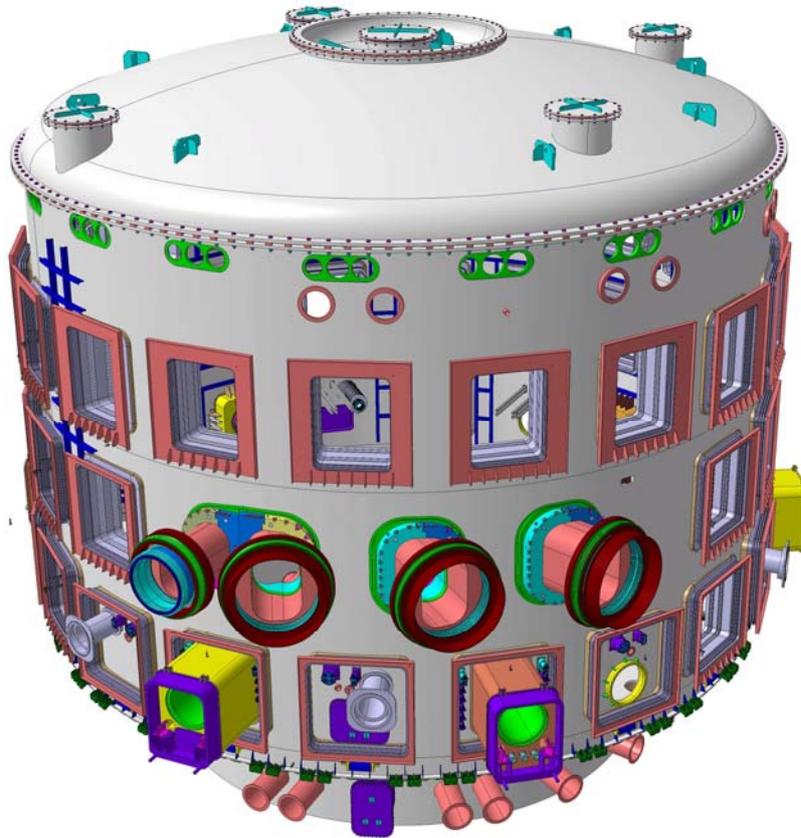
L&T is a USD 12.8 billion technology, engineering, construction, manufacturing and financial services conglomerate, with global operations. It is one of the largest and most respected companies in India's private sector. More than seven decades of a strong, customer-focused approach and the continuous quest for world-class quality have enabled it to attain and sustain leadership in all its major lines of business. L&T has an international presence, with a global spread of offices. A thrust on international business has seen overseas earnings grow significantly. It continues to grow its global footprint, with offices and manufacturing facilities in multiple countries. The company's businesses are supported by a wide marketing and distribution network, and have established a reputation for strong customer support.

ITER has been established to demonstrate the scientific and technological feasibility of fusion power. ITER is a unique international collaboration bringing together China, the European Union, India, Japan, Korea, Russia and the USA.

For more information on ITER, please visit [www.iter.org](http://www.iter.org).

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<http://www.iter.org/org/team/odg/comm/pressreleases>



The ITER Cryostat will be the world's largest high-vacuum pressure chamber ever built.

For the high-res drawing of the Cryostat: [http://www.iter.org/gallery/com\\_image\\_download](http://www.iter.org/gallery/com_image_download)