

DEFENCE BUSINESS



L&T-made K9 Vajra-T at Republic Day Parade in New Delhi

Overview:

L&T has been active in the Defence and strategic sector since the mid-80s, well ahead of the opening up of the sector for private industry participation, by associating with the Defence Research & Development Organisation (DRDO) and Naval indigenisation programmes. Having built a portfolio of technologies, products, systems, platforms and solutions, today L&T Defence provides design-to-delivery solutions across chosen defence segments with a focus on indigenous design, development and production of Naval (Submarines and Warships) and Land Platforms (Armoured Systems, Howitzers), Weapon Systems, Engineering Systems, Missile & Space Launch Vehicle subsystems, Sensors, Radar Systems and Avionics. These are complemented by R&D and Design & Engineering Centres for targeted Platforms, Systems & Solutions development.

The operations span across two R&D centres, three Design & Engineering Centres and Production centres at multiple locations spread across India to serve the Defence & Aerospace sectors. These include the following facilities:

- Submarine hull-building facility and an Armoured Systems manufacturing, integration & testing facility at L&T's Hazira Complex (near Surat)
- Modern shipyard at Kattupalli (near Chennai)

- Aerospace manufacturing shops for rocket motors for India's Space Launch Vehicles at Powai and Coimbatore
- Precision Manufacturing & Systems Complex for Aerospace & Missiles manufacturing at Coimbatore
- Advanced Composites facilities at Vadodara and Coimbatore
- Strategic Systems Complex for Weapon & Engineering Systems and Sensors at Talegaon near Pune
- Strategic Electronics Centre at Bengaluru

Besides these dedicated facilities, L&T also operates a facility at Visakhapatnam under the Government Owned Contractor Operated (GOCO) model for a Strategic Programme. These Work Centres are complemented by R&D Centres at Powai (Mumbai) and Bengaluru, and Design and Engineering Centres for Warship, Submarine and Weapon & Engineering Equipment at Powai and Chennai.

The Defence Business is structured into two business groups:

1. Defence & Aerospace
2. Defence Shipbuilding



Offshore Patrol Vessel for Indian Coast Guard



L&T has provided systems for most of India's space missions - including those to the moon and Mars

1. Defence & Aerospace

Over the years, the Defence and Aerospace (D&A) business has built a bouquet of a wide range of indigenous products, systems, solutions, platforms and technologies through in-house efforts as well as by teaming up with the DRDO, and participation in the Indian Navy's indigenisation programme for the development of a range of Engineering Systems and Weapon Systems and the realisation of Systems within the country. To date, the D&A strategic business group has indigenously developed more than 250 defence products, and more than 50 of them have been industrialised and delivered in serial production mode. The business model uniquely differentiates with focus on in-house technology and product development, innovation at the core of offerings, mature and equated partnerships with global majors, all of which enable it to maintain market leadership position in an environment where the Government is aggressively pursuing the indigenisation agenda for the long run, and where most indigenous players are dependent on the Transfer of Technology (ToT) model to pursue defence production. The D&A SBG also has a Joint Venture (JV) with MBDA, a global leader in missiles and missile systems. The JV is well positioned to indigenously offer advanced missile systems to the Indian Armed Forces.

2. Defence Shipbuilding

L&T's Shipbuilding business offers end-to-end solutions for design, construction and through-life

support of defence ships. L&T operates two defence shipyards – one at Hazira Manufacturing Complex, and another greenfield mega defence shipyard at Kattupalli, near Chennai. Located across a sprawling 900-acre complex, the Kattupalli Shipyard is India's largest yard. The design and construction of the yard ensures adaptation of global best practices like modular construction, construction under covered shops, use of a shiplift with dry and wet berths, etc., to enable simultaneous construction of different classes of vessels until near-completion on land and then launching them through the shiplift. A large number of Industry 4.0 practices have been instituted, enhancing the efficiency of construction.

A dedicated Warship Design Centre at Chennai is equipped with the latest integrated 3D design, analysis and Product Lifecycle Management tools, and interfaced with project management and ERP systems, in line with global best practices.

The Kattupalli Shipyard has been largely engaged in new build and refits / repairs of defence ships of the Indian Navy and Indian Coast Guard. Since 2010, the Shipbuilding business of L&T has designed, constructed and delivered 57 Defence Vessels, which include a Floating Dock (Navy), Interceptor Boats and Offshore Patrol Vessels (for the Coast Guard) in record time. The unique capability of the business to achieve on-time or ahead of contractual delivery performance in all the



Pinaka Multi Barrel Rocket Launcher



Indigenous ASW Rocket Launcher

contracts for Defence Vessels is a benchmark in itself in the Indian Shipbuilding Industry. The shipyard has a track record of delivering first-of-class vessels on / ahead of schedule with design and construction maturity and in-built quality.

L&T purchased the 3% stake held by the Tamil Nadu Industrial Development Corporation Ltd (TIDCO) in L&T Shipbuilding Ltd (LTSB) in April 2019, making it a wholly owned subsidiary. In July 2019, the L&T Board approved the Scheme of Amalgamation of LTSB with L&T wef 1st April, 2019 as record date. The NCLT permissions have since been obtained and LTSB has now been merged with parent Larsen & Toubro Limited.

Business Environment

The macro picture has been a mixed bag over the recent years. On the one hand, the Government of India (GoI) is taking substantive steps to promote defence exports, boost the acquisition pipeline by preferential categorization in favour of indigenous procurement of Defence systems and accelerating the process of AoNs and RFPs, while, on the other hand, budget constraints have seen orders slip by. There has been a gradual increase in the Defence Modernisation budget. However, the inclusion of the GST (since July 2017) and Customs Duties (since April 2016) as additional outflows from funds allocated to the Ministry of Defence (MoD) had, in effect, cut the capital allocations to

Defence in real terms. The consequent decrease in funds available for Defence Modernisation is visible from the drop in the volume of orders placed on Indian companies in preference to imports to address urgent gaps in capability. A few steps have been taken during the FY 2019-20 to defray the Customs duties and IGST on the MoD's imports (Government-to-Government deals) and specific programmes ordered on system integrators (DPSUs), necessitating import inputs not produced in India and, in the process, freeing some capital for indigenous acquisition from within the budget allocation.

As per the Rajya Sabha Q&A data, the MoD has cleared AoNs totalling more than ₹ 409,000 crore worth of programmes for Indian industries to participate in over the last five years.

The intent of the Government to achieve a higher degree of indigenisation and self-reliance is visible in the latest policy measures, such as Strategic Partnerships. The Defence procurement policy and procedures continue to evolve with earnest and positive impetus towards 'Make in India' and industry friendliness, as can be seen from the draft DPP-2020. While the GoI has taken steps to ensure ease of doing business, concern regarding a level playing field for the private sector continues in the form of retention of provisions to nominate large Defence programmes to state-owned companies.



Modular Bridging Systems



Floating Dock for Indian Navy

Major Achievements

During the year, the business has had multiple successes and proud moments, uniquely reaffirming L&T's positioning as a 'Nation Builder'. These include:

- L&T has been shortlisted as one of the two final contenders as Strategic Partners for P75 (I) submarine programme, and await issuance of the RFP
- Successfully delivered multiple Weapon Launch Systems (Land & Naval), Engineering Systems and Missile Systems to the Indian Armed forces
- The Work-Centres have set new benchmarks in terms of deliveries (OPVs, K9 Vajra-T, PINAKA, Satcom systems to name few), safety and digitalisation
- Delivered 44 K9 Vajra-T Self-propelled Howitzers ahead of schedule during the year, having reached a peak of 10 deliveries a month, with the team at ASC Hazira ramping up operations
- The R&D and Design & Engineering teams have developed a range of new technologies, products and solutions with a focus on emerging technologies such as Unmanned Systems, AR/VR, Image Processing and Predictive Maintenance that were on display at Defexpo 2020, emphasizing uniqueness of offerings, innovation and presence across the value chain
- The Kattupalli Shipyard attained the globally unique distinction of complete sea acceptance trials of OPV5 on its maiden sea sortie and cut the build time to below 20 months from the keel-laying
- Delivered 2 Offshore Patrol Vessels and 5 Interceptor Boats to the Indian Coast Guard, all ahead of contracted schedule
- L&T Shipbuilding achieved a breakthrough by initiating execution of a large export order for 12 High Speed Guard Boats from South East Asia and achieved a significant milestone in public-private-partnership by securing workshare from a DPSU Yard for construction of three Defence Vessels

Significant Initiatives

In addition to the focus on Defence Manufacturing to serve the Indian Armed Forces, Direct Exports of our matured weapon systems offerings, either solo or by partnering with DPSU / OFB for weapons, and entering into PPP relationships for and workshare with DPSUs are being pursued as two additional engines for growth. L&T has been working closely with DPSUs over the years and this relationship is being leveraged to target specific programmes and explore new opportunities in both domestic and international markets.

The teams embarked on consolidation of work centres and merged its Rabale operations into its Strategic Systems



Chemical Agent Detector



Fire Control Radar - designed and developed by L&T

Complex (SSC) Talegaon. R&D has been the backbone of the Defence business since its inception and the business will continue investing in R&D to develop new-age technologies and products such as Unmanned Systems (all four segments), Robotics, Additive Manufacturing and Artificial Intelligence.

The L&T-MBDA JV achieved an important landmark, with readiness to operationalize the new inert integration facility at Coimbatore.

L&T has been building a strong position in digital design since the mid-90s, and has attained proficiency in elements of Industry 4.0 in its multiple R&D, Design & Engineering Centres and Production work centres that extend to the building of platforms such as warships and submarines. The in-house Warship Design Centre employs highly skilled designers to build platforms in 3D / Virtual Domains and extensively use VR/AR tools for walk-through analysis for highly engineered designs which suit the modern production facilities on the shop-floor.

L&T's lead in submarine construction and outfitting and system integration with indigenously developed home-grown technologies draws from its early initiative in the digital domain nearly two decades ago. L&T has been gradually adopting an Industry 4.0 environment using

model digital data, tracking and scanning tools and data analytics for planning, quality control and sequencing.

The Armoured Systems Complex (factory) built recently at L&T's Hazira Complex is a modern 'Industry 4.0-ready' set-up. It has created a sizeable opportunity for shop-floor engineers and technicians to acquire skill in automation, robotization and multi-disciplinary system integration in order to attain >90% automated welding of armoured vehicle hulls and turrets using a series of robots, as well as to build complex components under the same roof using 3D printing wire-deposition processes for volume deposition.

Environment, Health and Safety

The safety track record across work centres, customer locations, and Business Partners' premises has been exemplary. L&T Shipbuilding's Kattupalli Yard has won the prestigious 'Sword of Honour' from the British Safety Council during FY20, making it the first shipyard in India and the fourth globally to achieve such a feat. The business has also implemented digital workmen safety systems such as RFID-based tracking especially in confined spaces, like submarines and warships, as well as tagging of assets for online tracking. The business continues to focus on the triple bottom line and green initiatives. It has achieved significant y-o-y reduction in water and energy consumption, in line with L&T's sustainability focus.

Human Resources

HR initiatives have been aligned to the overall business strategy by focussing on identifying and grooming high-potential talent, critical for having a competitive advantage, through various management and leadership programmes. L&T Defence has implemented a Technology Leadership Programme to maintain a market leadership position and continue to focus on development of niche technologies. Attention to leadership and talent development continues as a business imperative. Further, with renewed emphasis, the business has embarked upon employee engagement initiatives to retain and grow talent and continue to be an employer of choice.

Risks and Concerns

While the cyclical nature of the business affects the entire Defence sector, for L&T, which has developed a bouquet of products across the segment through in-house efforts, the risk is primarily that of delays and deferment of orders, given the vagaries of Capital budget allocation. It can be seen from parliamentary standing committee reports that the defence modernisation budget allocation was not sufficient even to cover the committed liabilities over the last two years, leading to acquisition programmes getting deferred, cancelled or even reduced in quantities after issuance of RFPs. The lack of funds for new acquisitions has resulted in very low order placement of about ₹ 77,000 crore on Indian industries over the past three years, with large portions being nominated to DPSUs. The rest of the orders are placed on foreign suppliers to address urgent capability gaps.

Outlook

The impact of social spending as a consequence of the COVID-19 pandemic may further affect the already-inadequate Capex budget available for Armed Forces Modernisation and Indian Space Programmes. Also, the decision-making window in FY 2020-21 is expected to shrink due to the pandemic, leading to the spill-over of a few significant contracts from Defence as well as Space

sectors into the next FY. The current slowdown in the economy of the country is expected to marginally affect the release of funds against the Navy's Capital budget, while the Revenue budget is likely to be significantly impacted, in turn impacting ship refits in the short term.

In order to offset the risk of order inflow, the business is pursuing a portion of business from major orders with DPSUs and is exploring increased export opportunities in the short term. To compensate for the effect of productivity loss due to the pandemic, various measures have been initiated for cost reduction in project procurement and revenue expenses, accelerated cash conversion cycle, targeted digitalisation, and reduced outsourcing to gainfully use idling manhours.

The outlook for Defence business remains cautious in the short run but positive in medium- long-term, as indigenous production picks up in a big way with the Government making concerted efforts to implement some of its major policy initiatives, such as Strategic Partnership and Indigenously Designed and Manufactured category programmes. By 2027, the Indian Navy intends to operate 175 warships and submarines. Such an aggressive fleet expansion plan, combined with the 'Make in India' initiative of the Government, provides wider opportunities to Indian shipyards for construction of warships and submarines for defence forces. Further, L&T's decades-long partnership with the DRDO in indigenous design and development programmes, including Strategic Programmes, augurs well, with unprecedented opportunities in the pipeline.

In the short run, Shipbuilding sees some significant opportunities, given the number of shipbuilding RFPs issued by the MoD during the last FY. Weapons Systems & Engineering Systems programmes have served to offer a strong foundation to consolidate and build upon. The Indian Space Research Organization (ISRO) has initiated action to involve private sector firms in launch vehicle integration, which is likely to create sizeable opportunities in the aerospace segment in the coming years.