

HEAVY ENGINEERING BUSINESS

Overview:

L&T's Heavy Engineering (HE) business is amongst the top 5 global fabricators to supply engineered-to-order critical equipment, piping and systems for core sector industries - fertilizer, petrochemical, refinery, oil & gas, gasification, thermal and nuclear power, including critical revamp and up-gradation projects.

The business is a leading supplier of hydro-processing reactors, high-pressure heat exchangers, waste heat boiler packages, ammonia converters, urea reactors, urea strippers and other critical equipment for process plants. Equipment supplied to the nuclear power sector includes steam generators, end shield assemblies and pressurizers. In addition, the business also provides modification, revamp and upgradation (MRU) services.

The Piping business unit fabricates critical piping spools for the power, refinery, petrochemical, fertilizer and chemical sectors and has a track record of exporting piping spools globally. The unit has achieved international recognition through an impeccable track record of executing large and complex projects, including high-end reactors and high-pressure heat exchangers, creating global benchmarks. Its capabilities include state-of-the-art, fully-integrated, globally-benchmarked manufacturing facilities and an experienced and



One of the two EO reactors delivered to RAPID Petronas Refinery, Malaysia

highly-skilled talent pool. The sustainability and safety standards at manufacturing facilities located in Mumbai, Hazira and Vadodara are at par with international standards.

The business has a JV with Nuclear Power Corporation of India (NPCIL), L&T Special Steels and Heavy Forgings Private Limited (LTSSHF) to cater to the demand for critical forgings required for the Indian Nuclear Power program and for other crucial sectors like defence, hydrocarbon and oil & gas. The JV has set up a fully-integrated forging facility (from steel scrap to finished forgings of alloy steels, carbon steel and stainless steels) with a capacity to produce single piece ingots up to 200 MT and forgings up to 120 MT in the first phase.

The JV has also been able to develop special steel grades and meet the needs of customers in the oil and gas segment, where it has been getting repeat orders. It has already qualified itself as the only indigenous producer of large and heavy forgings for prestigious Naval Programs. The entity has successfully completed development of the special steel grades for forgings required in naval applications. Having established the capabilities, the JV is expecting significant new opportunities, once orders for 6 Nuclear Submarines are placed under the Government's Make in India initiative.



India's heaviest Hydrocracking Reactor (1858 MT) for HPCL Visakh Refinery



Nuclear Steam Generator Cone Shell - 16 MT

Business Environment

The Business witnessed a spurt in the demand for equipment for the Oil & Gas sector (Downstream) in FY 19, mainly due to stable oil prices and the implementation of Marine Pollution norms i.e. IMO 2020. The investments by Oil Public Sector Undertakings are currently underway to comply with the BS-VI clean fuel standards.

The fertilizer industry saw limited growth in terms of energy saving projects viz. Kribhco Fertilizer and Indo Gulf Fertilizer, while the nuclear business was impacted by delay in the procurement of fleet orders.

Competition from European and other Indian fabricators continues to be fierce. Korean, Japanese and European companies are getting preference due to ECA (Export Credit Agency) financing requirements, prevalent mainly in Europe. Surplus capacities and limited demand has resulted in aggressive competition, putting extensive pressure on pricing and deliveries.

Major Achievements

During the year, the business experienced a spurt in order inflows with major orders being received in the Oil & Gas sector for critical reactors, coke drums, slug catchers, LNG equipment, Ethylene Oxide reactors, mainly for projects in the Middle East, China and USA. The LTSSHF JV received an

order for supply of steam generator forgings for 6 units to be set up in 'fleet' mode.

Major projects under execution are Atmospheric Residue Desulfurization (ARDS) reactors for ADNOC Refinery in UAE, steam generators for Gorakhpur Haryana Anu Vidyut Pariyojana (GHAVP) Unit -1& 2 for NPCIL and Hydrocracker Unit Reactors in Duqm Oman.

Significant Initiatives

The business has focused on operational excellence initiatives to deal with the challenging market scenario and to enhance its competitiveness further. Major initiatives include – On Time Delivery, First Time Right Work Culture, Talent Management and Organization Excellence. These initiatives have contributed to significant improvement in increasing our speed in manufacturing and enhanced our capabilities further.

Digitalisation

Digitalisation has been identified as a key driver for improving quality and productivity. Several digitalisation projects for improving monitoring of projects and resources, and creating dashboards have been taken up by the business. The Product & Technology Development Centre supports the business units to develop new products and manufacturing technologies.



Spools undergoing heat treatment at L&T's forging plant, Hazira



Lower portion of cryostat being built for ITER, world's first fusion energy project

Environment, Health and Safety

The Heavy Engineering business has maintained high standards of Occupational Health and Safety, and several initiatives like Reported Safety Concerns, EHS Awareness and Training sessions, and Theme Based Inspections are undertaken to provide a safe and healthy workspace for employees, customers and other stakeholders. The rigorous implementation of various processes has resulted in a YoY improvement in the business' safety performance parameters.

Human Resources

The Business has built a committed and experienced team of professionals, and adopted various policies and initiatives in order to sustain healthy employee relations, professional development and employee engagement. A cultural transformation through a combination of the Performance Management System, mentoring and digitalisation remains the key driver of these initiatives. These initiatives are communicated to all employees through various forums like SAMVAAD-2018. For nurturing new generation leaders and Talent Development, mentoring of key talents by senior leaders was initiated. Long Service Awards, Team Building Workshops, non-monetary recognition events, etc., are periodically undertaken to enhance employee motivation levels.

Risks and Concerns

The Business has a complete Risk Management framework in place in line with the Corporate Risk Management Policy. This ensures a structured review of all the projects at appropriate levels and across the entire life cycle of projects. The framework includes detailed review and monitoring of various risk factors like financial risk, currency and commodity risks, schedule and capacity risk, client and supplier related risks, country clearance, technological and scale challenges, among others. The risks are mitigated through regular reviews and implementation of appropriate risk mitigation measures. This framework has helped the Heavy Engineering business to maintain a healthy order book and ensure that there are no material weaknesses.

Outlook

Signs of a global economic slowdown and general elections held in Q1 of FY 2019-20 may result in reduced demand for heavy engineering equipment in the first half of FY 2019-20. Increasingly, customers are adopting strategies like reverse auction and qualifying new suppliers. This is resulting in further competitive pressures. On the domestic front, companies are striving to build references through technology tie ups with European and Japanese manufacturers.



8 ARDS Reactors (7000 MT) ready for delivery to RAPID Project, Malaysia

The second half is likely to provide Nuclear Fleet procurement opportunities (700 MWe PHWR projects). The domestic Refinery sector is likely to show a revival of the Capex cycle from Oil PSUs (IOCL, HPCL, CPCL and BPCL). Emergence of new refineries (RRPL- Ratnagiri, and HRRL- Barmer) and overall business expansion due to FDI inflows will provide avenues for the equipment business in Q4 FY20 / FY21. In the Fertilizer sector, major opportunities are expected from Talcher Fertilizers Limited.

With the Cabinet Committee on Security (CCS) clearing the proposal for the GOI's investment in 10 domestic nuclear power plant reactors (10X700MWe) through bulk ordering in May 2017, new opportunities have been opened up for LTSSHF. NPCIL has also initiated the process for the procurement of critical equipment/ components like end-shield stainless steel plates and forgings for pressurizers and Breed Cooler Condenser (BCD) for these 10 units.