

*Seven seas.
One solution.*



Vision

To be a global major
in Shipbuilding and Ship Repair
by creating a shipbuilding hub of
international standards in India

Customized Vessels:

Total Solutions

- Concept
- Design
- Construction
- Repairs, Refits and Conversions
- Life-cycle Management

Global Standards

- Safety
- Quality
- On-time Delivery
- Eco-compliance
- Energy-efficiency



Larsen & Toubro

L&T Shipbuilding is part of the reputed Larsen & Toubro conglomerate, which:

- Is a technology, engineering, manufacturing and construction major, with global operations.
- Is one of India's most respected companies
- Has a strong, customer-focused approach and a constant quest for top-class quality
- Has sustained leadership in its major lines of business over seven decades
- Is globally acknowledged as one of the top five manufacturing companies in its field
- Has an overseas manufacturing footprint, with facilities in the Middle East, South-East Asia and Australia

- Has comprehensive capabilities covering design, engineering, heavy fabrication and project management
- Is committed to community welfare and environment protection

L&T's Business Verticals

- Shipbuilding
- Heavy Engineering
- Hydrocarbon
- Construction
- Power
- Electrical & Automation
- Machinery & Industrial Products
- Information Technology
- Financial Services
- Railway Projects

Achievement Record



Signature of Excellence

- Played a critical role in building India's first nuclear powered submarine
- Successfully executed complex Hydrocarbon projects in India, the Middle East and South East Asia.
- Built coal and gas-based Power projects in India, the Gulf and Sri Lanka
- Manufactured the world's largest coal Gasifier and exported to China
- Fabricated the world's largest FCC regenerator for a refinery
- Constructed Asia's highest viaduct
- Built the world's longest limestone conveyor

L&T Shipbuilding

L&T Shipbuilding owns and operates two modern shipyards — one on the west coast of India at Hazira, near the city of Surat in Gujarat, and the other on the east coast at Kattupalli, near the metropolitan city of Chennai, the capital of the state of Tamil Nadu.

The corporate headquarters of L&T Shipbuilding and a state-of-the-art Marine Design Centre are located in Chennai, India.

L&T Shipbuilding focuses on four major business segments:

- Building warships, submarines and auxiliary vessels
- Building specialized commercial ships
- Repairs and refits of submarines as well as naval and commercial ships
- Ship conversions



Hazira Shipyard

The Hazira shipyard is located within the L&T Hazira Manufacturing Complex, a global-scale heavy manufacturing facility.

The yard has the capability to build sophisticated mid-sized ships up to 20,000T deadweight capacity and 160 metres in length.

The shipyard is equipped with plate stockyard, automatic blasting and priming line, plasma cutting machines and automatic panel making line. The yard maximizes pre-outfitting at the block level. Marine coating shops and pipe shops are designed to handle the complete load of the yard. A sloping berth enables controlled side-way launching of vessels.

Side Launch Facility

- Length: 160 m
- Vessel draft: 4 m
- Water depth: 5.5 m min.
- Vessel DWT: 20,000



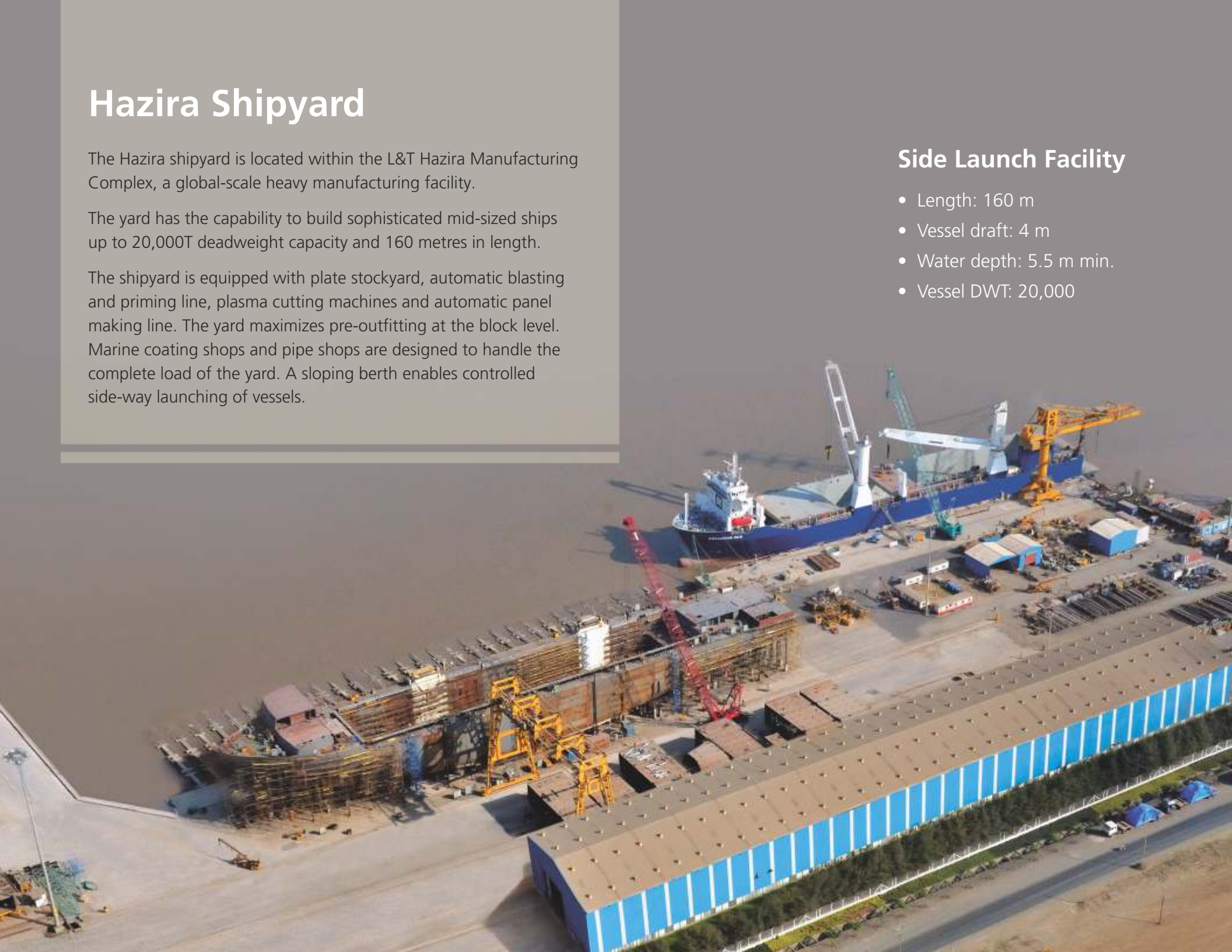
Plasma Cutting Machine



Panel Welding Machine



Pin Jigs for Curved Blocks



Kattupalli Shipyard

The Mega Shipyard is located at Kattupalli, about 40 km north of Chennai.

The shipyard complex also includes a Container Port and an Offshore Modular Fabrication Yard.

Area: 1225 acres (500 hectares)

Waterfront: 2.2 km

Depth: 10 m at berths

Channel depth: 16 m



Shiplift Piers (200 m)
Finger Jetty (200 m)



Wet and Dry Berths

- 4 Wet Berths (200 m long)
- 6 Dry Berths (200 m long)

Ship lift

- Length: 200 m (can be extended to 260 m)
- Width: 46 m
- Lifting capacity: 21,050 tonnes (upgradable to 23,000 tonnes)

Construction and Outfitting

The shipyard is equipped with a large plate stockyard, automatic blasting and priming line, plasma cutting machine and advanced hydraulic press / forming machines.

The yard's build strategy maximizes pre-outfitting at the block level. Marine coating shops and pipe shops are designed to handle the complete load of the yard.

A dedicated machine shop and electrical shops are available for ship repair and conversion activities.



Training

- Training of managers, designers, engineers, technicians and supervisors in L&T Skill Development Centres, and in specially developed modules in cooperation with Mitsubishi Heavy Industries, Japan, and various classification societies and design software firms.
- Hands-on training in the design offices and shipyards of Mitsubishi Heavy Industries in Japan
- Intensive in-house theoretical and practical training for workmen on welding, cutting, structural work, piping work and electrical outfitting
- Welder qualification and process qualification
- Simultaneous training of 100 workmen
- Focus on multi-skilled workforce



Kattupalli expansion plans to match business demands

Drydocks

- 500 x 80 m
- 380 x 100 m

Ship Lift

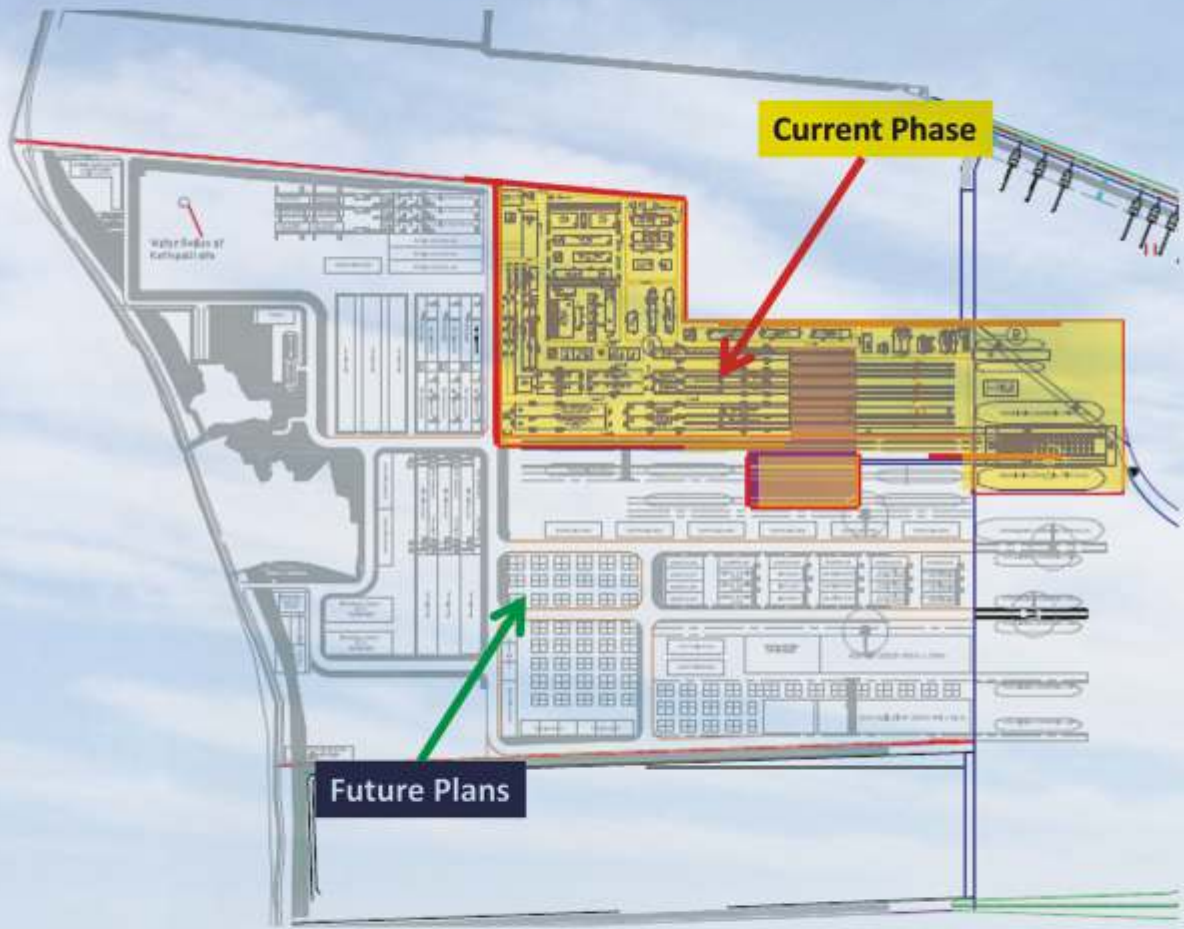
- Extension to 260 m length
- Increase of lift capacity to 23,000 T

Additional production lines

Additional Dry Berths for repair and new construction

Additional Jetties for outfit and repair

Steel Fabrication Shops with an annual capacity of 450,000 T



Joining Hands with a Global Leader

L&T Shipbuilding has entered into a comprehensive technical collaboration with Mitsubishi Heavy Industries, Ltd. Japan, for design and construction of modern, eco-friendly and fuel-efficient specialized ships. This enables L&T Shipbuilding to deliver customized solutions for the maritime industry at competitive prices.

The collaboration enables L&T Shipbuilding to access a wide range of state-of-the-art design solutions and technical knowhow, ensuring that our Design Centre delivers eco-friendly, efficient and highly customized solutions to ship-owners.

Areas of Co-operation

- Design
- Marketing
- Procurement
- Planning
- Production
- Quality Assurance

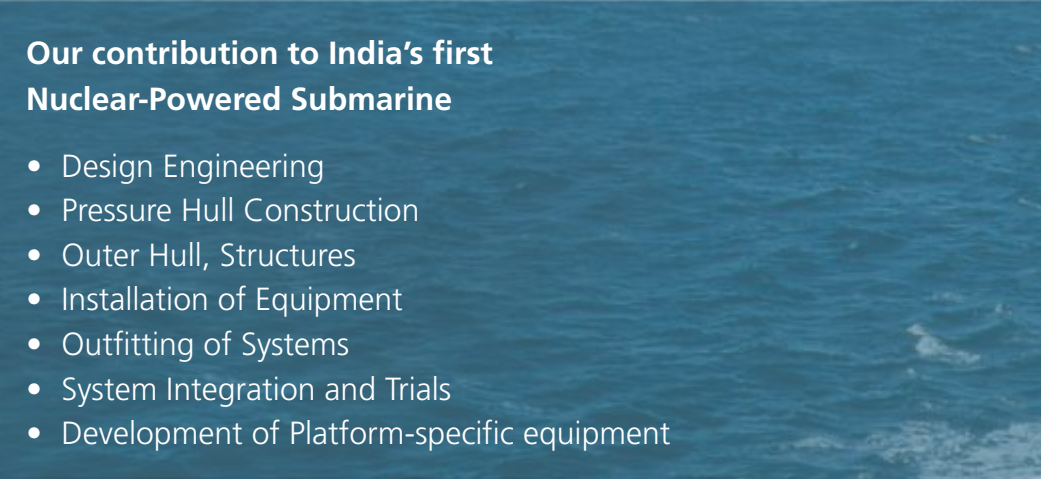
The L&T Shipbuilding Advantage

- State-of-the-art technology and processes in design and operations
- Construction of complex vessels with experienced specialists
- Excellence in quality and on-time delivery



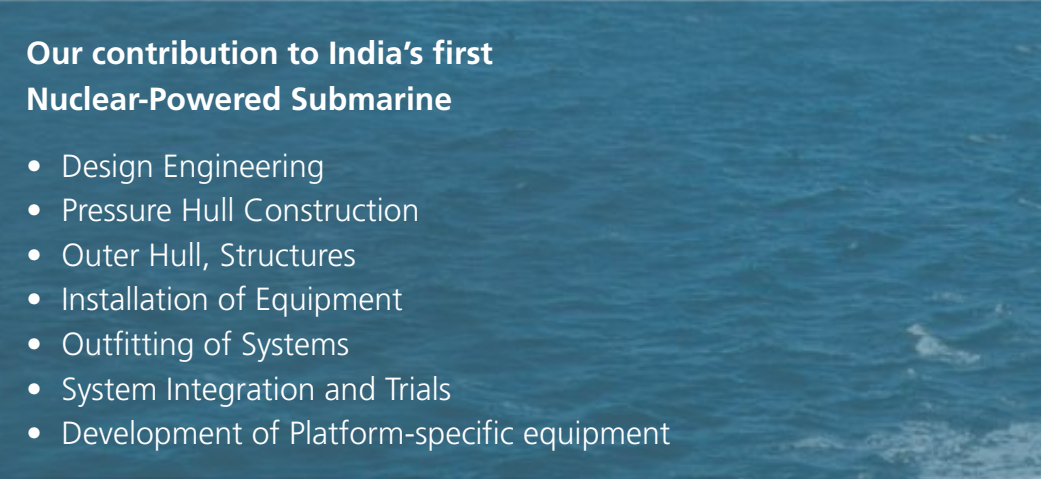
Our Track Record

Dr. Manmohan Singh, Prime Minister of India, congratulating Mr. A. M. Naik, Chairman & MD of Larsen & Toubro, at the launching of 'INS Arihant', India's first nuclear-powered submarine (26th July, 2009).



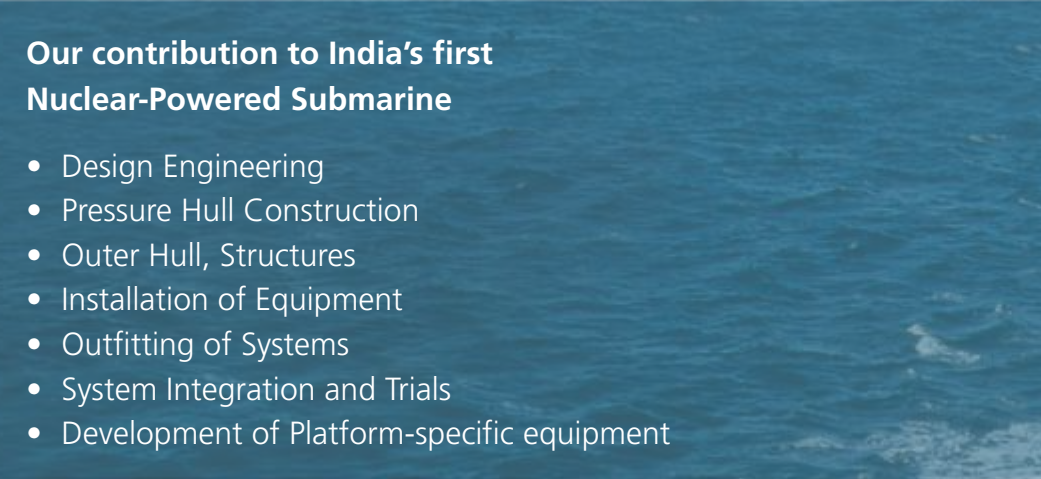
Our contribution to India's first Nuclear-Powered Submarine

- Design Engineering
- Pressure Hull Construction
- Outer Hull, Structures
- Installation of Equipment
- Outfitting of Systems
- System Integration and Trials
- Development of Platform-specific equipment



Our contribution to India's first Nuclear-Powered Submarine

- Design Engineering
- Pressure Hull Construction
- Outer Hull, Structures
- Installation of Equipment
- Outfitting of Systems
- System Integration and Trials
- Development of Platform-specific equipment

- 
- ## **Our contribution to India's first Nuclear-Powered Submarine**
- Design Engineering
 - Pressure Hull Construction
 - Outer Hull, Structures
 - Installation of Equipment
 - Outfitting of Systems
 - System Integration and Trials
 - Development of Platform-specific equipment



ROLLDock SUN: Multipurpose heavy-lift vessel from RollDock

Shipbuilder	Larsen & Toubro	Speed	172kn
Vessel's name	RollDock Sure	Manoeuvring power: alternator	
Hull No	81001	Engine	2
Owner/operator	RollDock Shipping BV	Manufacturer	Cummins
Country	The Netherlands	Output/kw of each unit	3000/4
Designer	RollDock	Displacement: m³	3
Country	The Netherlands	Number	5
Model test establishment used	MARIN	Engine make/model	Caterpillar C32
Flag	Dutch	Type of fuel	NG
IMO number	9392981	Consumption of each unit	1000/4
Total number of sister vessels already completed (excluding ship presented)	0	Alternate make/model	(Specify)
Total number of sister ships still in order	3	Output/kw of each type	3000/4
		Extra-high speed: including measurement	
		Measurement	Knot/mph
		On main engine	Yes
		Boiler	
		Type	Oil fired
		Make	Kathleen
		Output	3000/4
		Cargo cranes	
		Number	1
		Make	Liebherr
		Model	C81 300
		Performance	3000/4 (J&S)
		Moving equipment	
		Number	8
		Make	3BIC
		Model	Electra hydraulic
		Water column	
		Design	RollDock
		Manufacturer	Larsen & Toubro
		Type	Port/starboard & bow/stern cranes
		Containers	
		Total TEU capacity	42
		On deck	42
		Below deck	42
		Geopanels	
		Number of each	1
		Type	Stainless, 1013120
		Designer	ITS Breda
		Box frames	
		Make	Wartsila
		Model	Wartsila
		Output	300/4
		Bridge control system	
		Make	SAF Electronics
		Type	Hydraulic
		Crane operation	Yes
		Fire reduction system	
		Make/type	Aker Chubb Docking
		Fire extinguishing systems	
		Cargo hoists	Aker Chubb
		Engine hoists	Aker Chubb
		Control system	
		Launch/lifted on date	
		Delivery date	31 January 2001



The Royal Institution of Naval Architects adjudged MV Rolldock Sun, the maiden vessel built by L&T Shipbuilding, as 'Significant Ship of the Year 2010'.

VESSELS DELIVERED			
Vessel	Type	DWT	Customer
Rolldock Sun	Ro-Ro, Semi-Submersible	7000	M/S Rolldock, The Netherlands
Rolldock Sea	Ro-Ro, Semi-Submersible	7000	M/S Rolldock, The Netherlands

The photograph is for representational purpose only, and does not purport to be a photograph of the actual nuclear-powered submarine built by L&T.

Current Projects

VESSELS UNDER CONSTRUCTION			
Vessel	Type	DWT	Customer
Happy Sky	Heavy Lift Vessel	18,600	M/s Biglift, The Netherlands
Interceptor Boats	Aluminium hull, water jet-propelled high-speed boats (36 nos.)	-	Indian Coast Guard



Portfolio



Commercial

- Multi-purpose, heavy-lift, roll-on-roll-off
- Semi-submersible special purpose ships
- Container ships
- LPG / LNG vessels
- Chemical tankers
- Pure car carriers and PCTCs
- Offshore utility vessels
- Dredgers, reefers, cable layers



Defence

- **Warships**
 - Frigates
 - Destroyers
 - corvettes
- **Submarines**
- **Auxiliary ships**
 - Offshore patrol vessels
 - Tankers
 - Training ships
 - Interceptor boats



Repair and Conversion

- Commercial vessels
- Defence vessels
- Floating marine structures



Marine Systems and Equipment

- Steering gear and fin stabilizer systems
- Propeller shafts
- Electrical distribution network components
- Integrated vessel management systems
- Helicopter hangar equipment, blast-proof shutters, heat exchangers, etc.
- Weapon launch platform and sensor systems

Ship Repair and Conversion

- Shiplift of 200 m length, 46 m width and 21050 tonnes lift capacity
- 2 shiplift piers of 200 m length
- 2 finger jetties of 200 m length
- 4 Dry berths, dedicated for repairs and conversion
- Dedicated shops for repairs and conversions, well-equipped to undertake repairs and refits.
- Combination of Shiplift, dedicated wet / dry berths and dedicated shops reduce cycle time and ensure independent management and focus on repair and conversion projects.
- With in-house design strengths, the yard also specializes in conversion, refit and retrofit projects



Design Capabilities

L&T Shipbuilding leverages digital tools for enhancing productivity, reducing cycle time with improved quality.

Flawless design is accomplished by proven software packages, e.g.

- NAPA, MAXSURF for concept and basic design
- Catia / Tribon / NupasCadmatic for detailed design
- Product Lifecycle Management for document management, revision control and change management
- EPLAN for electrical systems and special software packages for analyses

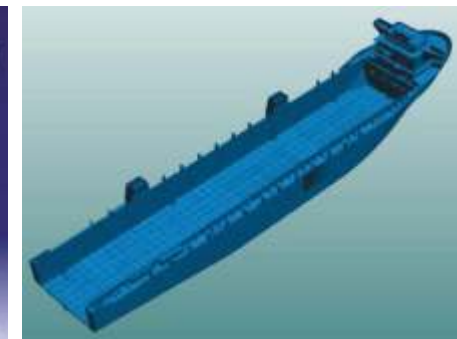
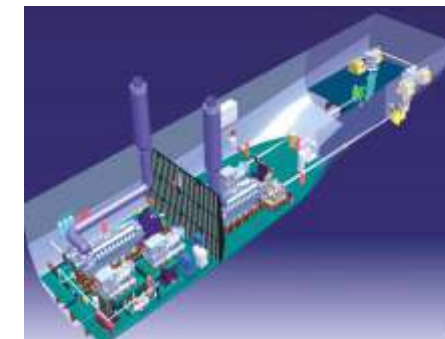
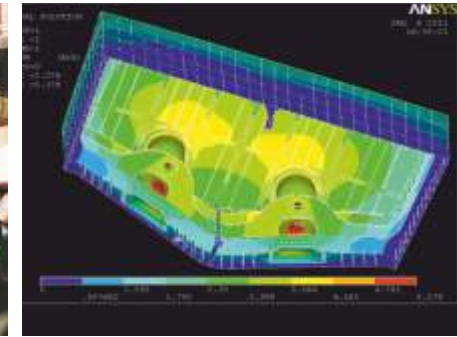
Staffed by over 400 engineers, spread across Mumbai, Hazira and Chennai, L&T Shipbuilding's Design Centres provide solutions for commercial ships and warships.

Implemented ERP solution for digital control and monitoring of construction processes. Closely integrated with design data, the system provides for document management, revision control, change management, work authorization, etc.

L&T is the first private shipyard in India to introduce the **Virtual Reality Studio** for design and production functions. Large touch-screens, ruggedized palmtops, wireless networks, etc. add to productivity.

Advantages

- State-of-the-art technology and processes in design and operations
- Construction of complex vessels with experienced specialists
- Excellence in quality and on-time delivery



Connecting to Contemporary HSE Standards

L&T's shipyards are committed to meeting or exceeding the quality, health, safety and environment requirements of our clients.

L&T's quality and HSE procedures and accreditation will ensure that all the required tools are in place to control the processes and conditions during operations.

ISO 9001 Quality Management Certificate affirms our quality processes and procedures. Quality permeates all our activities – including design, purchase, outfitting, painting, welding and outsourcing. We continue to train our workforce, develop technology, improve building methods and invest in upgrade of facilities to produce more competitive quality products for our clients. Digital and optical tools enable our QA system.



Environment, Health and Safety

Environment

- Well-planned water harvesting and recycling.
- Administration Block under certification for LEED Platinum rating
- Special attention to effluents and paint disposal
- Energy conservation – use of solar-powered/LED lighting wherever possible, maximizing use of natural lighting
- Horticulture and greenery at facilities

Safety

- Systems and processes conforming to international standards
- Pro-active approach through elaborate and frequent audits
- Unique system to capture safety-related observations
- Daily Tool-Box talks and frequent refresher training
- Workplace Management System to ensure good house-keeping
- Risk and hazard assessment in critical operations

Health

- Well-equipped Medical Centre
- Periodic health checks and awareness camps
- Community Health Centre

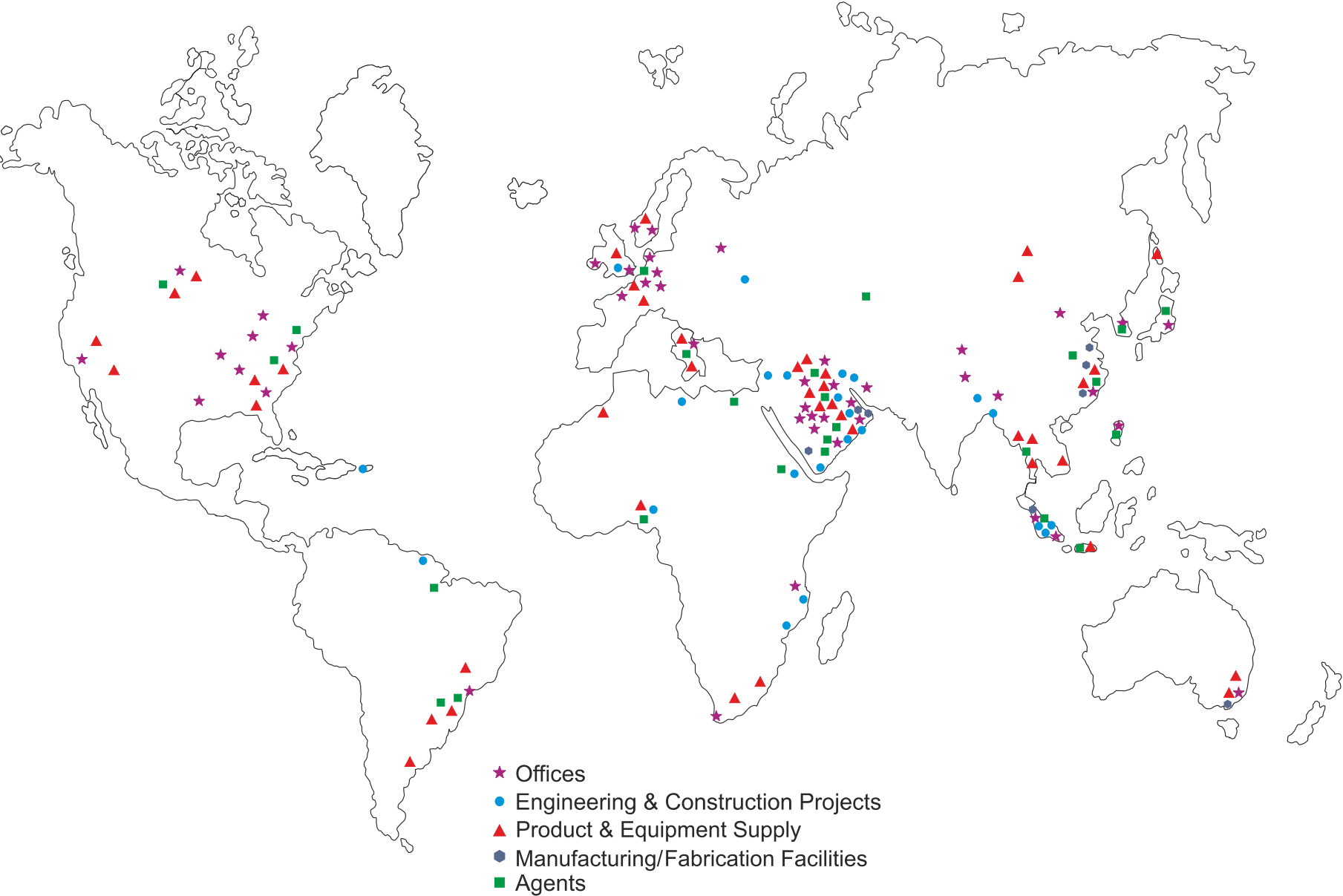


Housing, Amenities & Recreation Facilities

- Conveniently located adjoining the shipyard
- Separate accommodation for officers and crew
- Health Club and Gymnasium
- Recreation centre
- Sports complex
- Regular transport to Chennai city available



Larsen & Toubro A Global Presence



Note: Map is broadly representative of L&T's presence in markets worldwide.
For details of establishments within India, please refer to 'Nationwide Network'.

L&T Shipbuilding

L&T Shipbuilding Limited

TC-1, L&T Campus
Mount Poonamallee Road
Manapakkam
Chennai - 600 089. INDIA
www.Larsentoubro.com

Contact:

New Builds

Tel : +91 44 2270 6501
Fax: +91 44 2252 9901
NB.Commercial@Larsentoubro.com

Repairs

Tel : +91 44 2270 6543
Fax: +91 44 2252 9901
shiprepairs@Larsentoubro.com

Naval and Coast Guard Vessels

Tel: +91 44 2270 6509
marine.marketing@Larsentoubro.com