A WINNING PARTNERSHIP

L&T Special Steels and Heavy Forgings (LTSSHF) is a joint venture of Larsen & Toubro and Nuclear Power Corporation of India Ltd. (NPCIL).

Larsen & Toubro is a multi-billion-dollar technology, engineering, construction, manufacturing and financial services conglomerate, with global operations. Its products and systems are marketed in over 30 countries worldwide. L&T 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.

Our partner, NPCIL operates under the Department of Atomic Energy, India. NPCIL is the sole operator of more than 20 commercial nuclear power plants in India with more than 320 reactor-years of safe and reliable operation.

This Public-Private Partnership has come together to give India its biggest integrated steel-making, forging and machining facility.

The Power of Two

LTSSHF has entered into a technical collaboration with world renowned Japan Steel Works (JSW) to make heavy steel forgings, using ingots up to 200MT. This collaboration allows access to JSW’s technical expertise and over a century of steel-making experience for the following sectors:

- Hydrocarbon
- Steel
- Thermal & Hydro Power
A Multi-sector Focus

L&T Special Steels and Heavy Forgings has the capacity to meet almost all the heavy forging requirements of critical sectors. Our custom-made products are used across the industrial spectrum right from the nuclear sectors, to refineries, power, fertilizers, hydrocarbons, petrochemicals, cement, mining, ship building and steel.

For all sectors, we make the widest range of high quality forgings on par with the best in the world. Forgings manufactured by us for various industries include shafts, shells, nozzles, dished ends, cones, plates, tube sheets and steel mill rolls.

Our products meet the needs of clients around the world. We have chosen our location as India to give our customers world-class technical expertise and cost advantages.
India’s Largest Integrated Steel-making and Forging Facility

Our steel making and forging facility at Hazira, Gujarat is India’s largest integrated steel making, forging and machining facility. It is the only facility of its kind in South East Asia to produce nuclear-grade forgings.

This facility spreads over a 100-acre campus with a covered shop area of approximately 65,000 m² and a total land area of 420,000 m².

Our Focus, Our People

L&T Special Steels and Heavy Forgings is backed by a highly experienced team with the right skills and high-competence required for the industry.

Our team is proficient in the areas of Technology, Forging, Safety and EHS. Our team members complement their experience with the knowledge held by both partners, and update their skills through frequent training programmes.

This goes a long way towards fulfilling the joint vision of NPCIL and L&T to provide custom-made steel and forgings that are on par with the best in the world.
OUR RANGE

Steel Forgings for Every Need

Nuclear Products

Our nuclear product range includes shells, dished ends, cones and tube-sheets.

Hydrocarbon

Our hydrocarbon range includes shells, tube sheets and other heavy components.
Defence

Our defense equipment range includes plates, gun barrels and shells & rings. (All of the above conform to ASME, ASTM, DIN, EN, GOST and other international standards)

Controlled Tramp Elements such as As, Sb, Sn, Co, Cu and others
Control of gases such as hydrogen, oxygen, nitrogen, etc.
Control of elements such as phosphorus, sulphur, etc.

Power

Our power equipment range includes generator shafts, rotors and turbine shafts.

Oil & Gas and Steel Industry

Our steel industry range includes steel mill rolls, mould / die steels, Blow Off Preventer (BOP).

Material Handling and Mining Sector

L&T Special Steels and Heavy Forgings provides customers with the widest range of finished forgings. We provide solutions for customised, end-to-end requirements, from steel-making to forging. We provide the widest range of high grade steels, with applications as varied as industrial piping and aerospace. We offer customers a perfect blend of size, variety, accelerated delivery and quality.

Our steel product range includes:

- Carbon Steel
- Carbon Manganese Steel
- Low Alloy Steel
- Stainless steel

(All of the above conform to ASME, ASTM, DIN, EN, GOST and other international standards)

- Custom-made steel (based on industry requirement)
- Clean Steel
  - Controlled Tramp Elements such as As, Sb, Sn, Co, Cu and others
  - Control of gases such as hydrogen, oxygen, nitrogen, etc.
  - Control of elements such as phosphorus, sulphur, etc.
- Control of X factor, J factor and other required factors
Integrated Facility for Enhanced Scale and Sophistication

Our 65000 m² integrated facility at Hazira offers you state-of-the-art melting equipment. We have one of the world’s largest forging presses, capable of producing forgings as large as 5 m in height and 6.1 m in diameter. All this is supported by a fully-equipped machine shop and an advanced testing facility.

OUR FACILITIES

OUR FACILITIES

PROCESS FLOW

Scrap to finished forging
Vertical Turning Lathes (250 MT)
Horizontal Lathes (up to 12M)
Floor Type Horizontal borers
Other conventional machines for cutting, milling and planing

100 MT Electric Arc Furnace
Ladle Refining Furnace
VD/VOD
Bottom Pouring Ingot Casting
Vacuum Ingot Casting

9000 MT Forging Press
150 MT Manipulator
Re-heating Furnaces
Heat-treatment Furnaces
Vertical Shaft Furnace

Vertical Turning Lathes (250 MT)
Horizontal Lathes (up to 12M)
Floor Type Horizontal borers
Other conventional machines for cutting, milling and planing
Setting New Standards of Metallurgical Excellence

At L&T Special Steel and Heavy Forgings, a commitment to quality drives us to improve upon our offerings. This has led to products that have substantially raised the industrial bar.

We consistently maintain extremely low H (<1ppm) in our supplies along with ultra low tramp elements meeting the stringent requirements of J & X factors, magnetic permeability under i.e. <1.05µ, maintaining hardness levels within the band of 20 BHN.

Our commitment to quality is peerless and is directly reflected in the products we deliver to our customers.
L&T Special Steels and Heavy Forgings is equipped with state-of-the-art in-house inspection and testing facilities for mechanical, chemical, metallurgical, non-destructive examination including radioactivity inspection.

Every piece of finished forging that we create undergoes a battery of mechanical, chemical, metallurgical, dimensional and non-destructive tests at our dedicated testing and inspection centres to ensure total quality before it is shipped to our customers.

Our testing laboratory is accredited by NABL (ISO/IEC 17025:2005) for chemical and mechanical testings.

We hold various certifications such as ISO 9001, ISO 14001, OHSAS 18001 and ISO 50001.

Our fabrication facility has also been awarded the U/U2 Certification by ASME and continues to provide value to our customers.

The Company is approved by various national/international bodies like Lummus, BARC, IBR, NPCIL, EIL, GE, etc.

Our processes, quality systems, safety standards and sustainability efforts are regularly ratified by various global agencies, enabling us to not only meet but even exceed global benchmarks on all counts.
### Testing Systems

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Chemical</th>
<th>Metallurgical</th>
<th>Non-Destructive Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Test</td>
<td>Spectrometric Test</td>
<td>Metallographic study</td>
<td>Radioactivity Detection system</td>
</tr>
<tr>
<td>Impact Test</td>
<td>“C” &amp; “S” Analysis</td>
<td>Microhardness Test</td>
<td>Ultrasonic Examination</td>
</tr>
<tr>
<td>Dropweight Test</td>
<td>O₂, H, N Gas Analysis</td>
<td>WDXRF Analysis of Fluxes</td>
<td>Liquid Penetrant Examination</td>
</tr>
<tr>
<td>Hardness Test</td>
<td></td>
<td>Ferro Alloys, Slag, etc.</td>
<td>Magnetic Particle Examination</td>
</tr>
</tbody>
</table>

### Certifications:

**Quality:** ISO 9001 • ISO 14001 • ISO18001 • ISO50001

- ASME (Material)
- Lab Accreditation by NABL (National Accreditation Board of Testing Laboratory)
Forged for A Better World

Our integrated approach towards Environment Health and Safety (EHS) Management is based on various national and international standards. This helps us to achieve our goal of going beyond legal compliance.

SAFETY
We monitor competency and employ Behavior Based Safety methodology to bring the culture of safety into every aspect of operation.

ENVIRONMENT
We meet the norms for environment management with:
- Highly efficient Fume Extraction system
- Zero Liquid Discharge
- 100% Recycling of treated effluent
- 100% Reusing of treated Sewage
- Advanced technologies for pollution control
- UF & RO-based effluent treatment plant and SBR-based sewage treatment plant
- Robust Environmental Monitoring System
- Online Monitoring System for Ambient Air Quality and Stack Monitoring
- Rainwater harvesting
- Usage of green fuel (natural gas)
- Wealth out of waste (converting waste into reusable form)
- More than 33% green belt area

Certificates:
- Safety: OHSAS 18001: 2007
- Environment: ISO 14001: 2004

We have been awarded IGBC’s LEED INDIA PLATINUM RATING for our buildings that use less water, optimise use of energy, conserve natural resources and provide a healthier work environment, as compared to conventional buildings.