

Track Record

We have produced and supplied forgings for 700MWe PHWR steam generators and pressuriser. We have supplied forgings for international nuclear projects like the spent fuel cask and the ITER project.

Steam generator forgings - NPCIL 700 MWe PHWR		Formed Cone Shell Forging	
Shell		MOC	: SA508 Gr 3 Cl 1 / 20MnMoNi55
MOC	: SA508 Gr 3 Cl 1 / 20MnMoNi55	Unit Weight	: 17.5 MT
Weight	: 24 MT		
Formed Torrispherical head		Spherical Segment Hemi Head	
MOC	: SA508 Gr 3 Cl 1 / 20MnMoNi55	MOC	: SA508 Gr 3 Cl 1 / 20MnMoNi55
Unit Weight	: 9.5 MT	Unit Weight	: 23.9 MT



Steam generator shell



Formed torispherical head



Formed cone shell forging



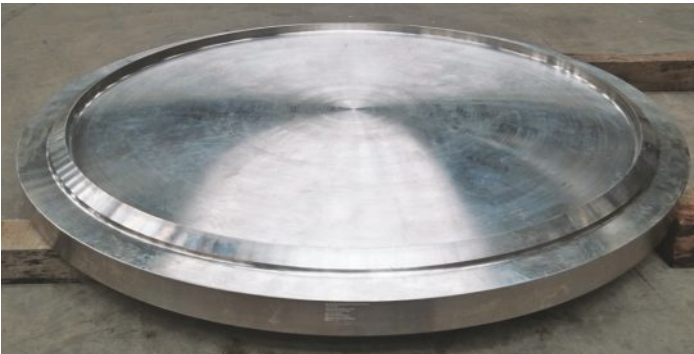
Formed spherical segment hemi-head

Nuclear-sector forgings



Forgings for Spent fuel Storage Casks

MOC	: SA 266M Gr2
Weight	: 35 MT



Typical Nuclear Tube sheet

MOC	: SA508 Gr 3 Cl 1 / 20MnMoNi55
Weight	: 11 MT



Forgings for Pressuriser Shells

MOC	: SA508 Gr 3 Cl 1 / 20MnMoNi55
Weight	: 18 MT



Forgings for nuclear project

MOC	: SA 266 Gr 3
Weight	: 15 MT

SS plates for ITER India – ITER France

MOC	: SS 304L
Maximum Dimensions	: Length 7m, Width 2m and thickness 300mm to 900mm
Maximum Weight	: 20 MT

We have manufactured and supplied stainless steel plates of high thickness for ITER – the international nuclear fusion research and engineering project that aims to produce electricity from fusion power. L&T is manufacturing the cryostat – the world's largest high-pressure vacuum vessel.



Besides the Nuclear Sector, LTSSHF Supplies Heavy Forgings for critical industries like Hydrocarbon, Power, Steel, Mining & Metal, Oil & Gas Etc in various grades of Carbon, Low Alloy and Stainless steel.



**L&T Special Steels and Heavy Forgings Private Limited**  
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Nuclear-Grade Heavy Forgings  
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CEB/C/PRD/102015







L&T Special Steels and Heavy Forgings Pvt. Ltd. is India's largest integrated steel-making, forging and machining facility – and is the only company of its kind in South-East Asia to produce nuclear-grade forgings. It is a joint venture of Larsen & Toubro Limited (L&T) and Nuclear Power Corporation of India Limited (NPCIL).

Larsen & Toubro is a multi-billion-dollar technology, engineering, construction, manufacturing and financial services conglomerate, with global operations – and one of the largest and most respected companies in India's private sector.

NPCIL operates under the Department of Atomic Energy, India. It is the sole operator of 20 commercial nuclear power plants in India, and has 320 reactor years of safe and reliable operation.



Eliminating India's need for the import of critical and strategic forgings, the Company manufactures forgings of special grades for the nuclear, defense and power sectors. It also manufactures heavy forgings for the hydrocarbon sector and other core-sector industries like steel, cement, fertilizer.

We possess the integrated capability to manufacture forgings up to 120MT of finished weight from ingots made in-house up to 300MT weight. This facility can be enhanced to make 600MT ingots and with these ingots, forgings heavier than 120MT can be manufactured.

For the Indian nuclear programme (nuclear plants) we have the capability to produce the following:

**For Nuclear PHWR programmes:**

- Forgings for steam generators (shells, cones, tube sheets, and dished ends)
- Forgings for pressurizer (shells and dished ends)
- SS plates for Calandria and end shields
- Lattice tubes & End fittings.
- Headers and High pressure piping

Critical **castings** can also be developed in this unit.

**For LWR & IPWR programs:**

- Forgings for reactors (shells and dished ends)
- Forgings for steam generators (shells, cones, tube sheets, and dished ends)
- Forgings for pressuriser (shells and dished ends)
- High-pressure piping

## Integrated Facility, Enhanced Efficiency

### PROCESS FLOW



### Scrap to Finished forging

L&T Special Steels and Heavy Forgings Pvt. Ltd. is a one-stop shop for nuclear-grade and heavy forgings. The advantages of an integrated manufacturing facility are many: convenience, seamless interface, total QC, cost-efficiency, faster delivery and total trust.

Our full spectrum of world-class manufacturing shops comprises:

**Steel Melt Shop**  
**Equipment:**

- 100 MT electric arc furnace
- Ladle Refining Furnace
- VD/VOD
- Bottom pouring ingot-casting
- Vacuum ingot-casting

**Forge Shop**  
**Equipment:**

- 9000 MT forging press
- 150 MT manipulator
- Re-heating furnaces
- Heat-treatment furnaces

**Machine Shop**  
**Equipment:**

- Vertical turning lathe (250 MT)
- Horizontal lathes (up to 12M)
- Floor-type horizontal borer
- Other conventional machines for cutting, milling and planing

## Environment, Health & Safety – Globally Benchmarked

Our integrated approach towards the crucial area of Environment, Health and Safety (EHS) is based on national and international standards, and extends beyond legal compliance.

Competency monitoring and behaviour-based safety methodology bring our safety-based culture to every aspect of operations.

**Our facility's environmental management best practices include:**

- Employing a high-efficiency fume-extraction system
- Ensuring zero-liquid discharge
- 100% recycling of treated effluent
- Reuse of treated sewage
- Using advanced technology for pollution-control
- Rainwater harvesting
- Using green fuel (natural gas)

In recognition of our EHS efforts, OHSAS has awarded us several certificates: OHSAS 18001:2007 (for Safety), ISO 14001:2004 (for Environment) and OHSAS 18001 (for EHS).



## Certified for Excellence

Every piece of forging equipment we create undergoes a battery of mechanical, chemical, metallurgical and radioactivity tests at our world-class in-house testing facilities, which are the only such facilities in India for nuclear-grade forgings.

We are India's only forging company with ASME's QSC certificate as a Material Organization (MO).

