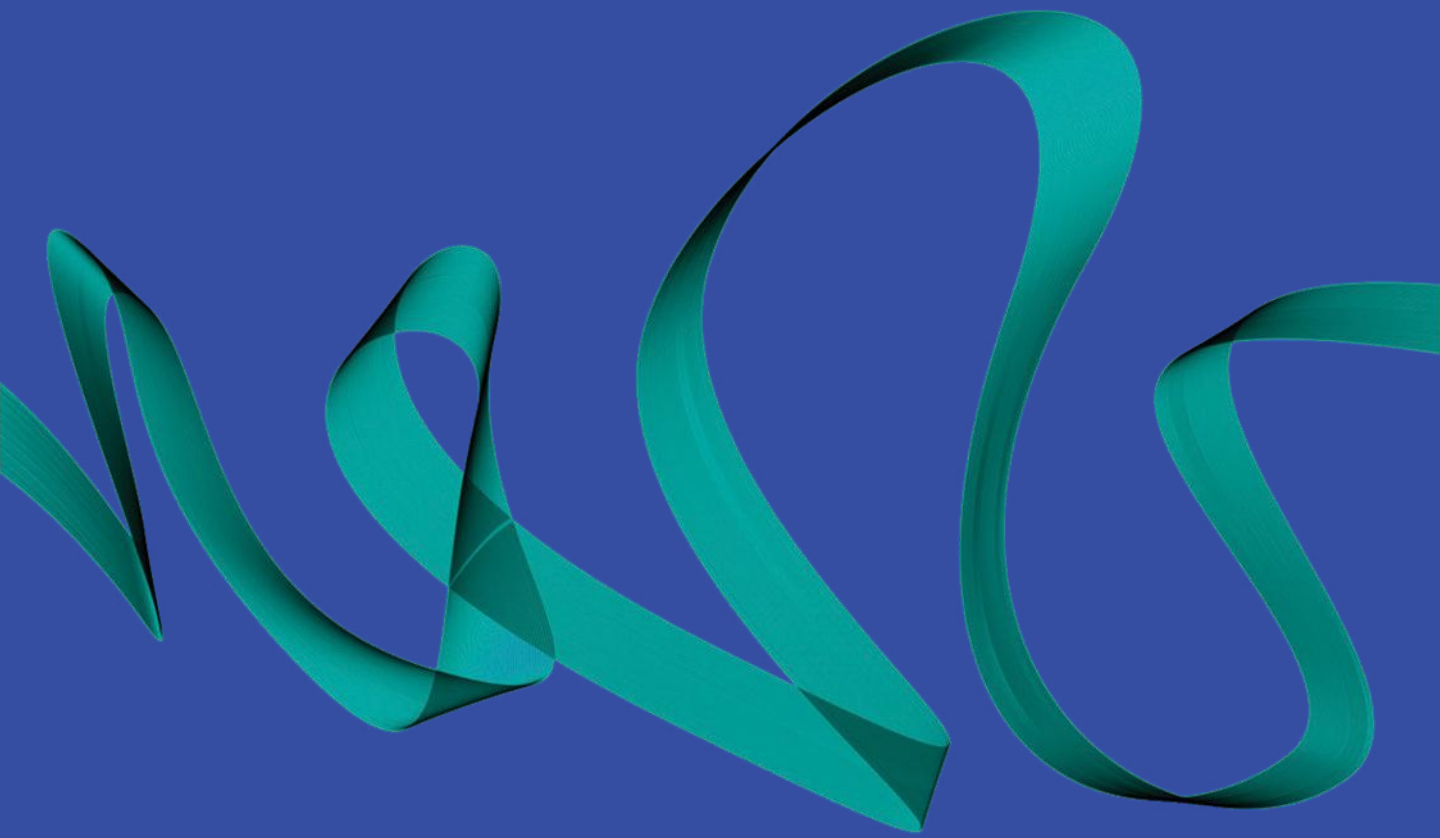
India's Engineering Industry



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November 2013

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India’s engineering industry – liberalised and on the rise

India's engineering industry has grown by an annual average of 12 per cent for the past five years on the back of higher investment in infrastructure development and industrial production, new government initiatives, such as allowing 100 per cent foreign ownership of firms within the sector, and lowering customs duty.

As a result foreign companies have started expanding into the Indian market by setting up local manufacturing bases to support domestic demand and exports. This has seen the local machinery/capital equipment sector diversify to serve the needs of new technological developments.

India has a strong engineering and capital goods market. Engineering is India's largest industrial segment and accounts for nearly 3-4 per cent of the country's economy and employs more than 4 million skilled and semi-skilled workers.

The sector can be broken down into two main segments: heavy engineering and light engineering. Heavy engineering accounts for more than four-fifths of the sector and includes capital goods/machinery and equipment as well as transport equipment. Light engineering industry consists of castings, forgings and fasteners, process control instruments, medical and surgical instruments, and similar such equipment.

India's engineering sector by segment

Heavy engineering	Light engineering
▪ Capital goods ▪ Transport equipment ▪ Other machinery	▪ Sophisticated microprocessor-based equipment ▪ Low-tech items: forgings, castings, fasteners etc

Heavy engineering – key segments

Segment	Key highlights	Production growth (2009-12)
Boilers	India's boiler industry was valued at US$5bn in 2012 up from US$2bn in 2008 Investment has focused on improving manufacturing capabilities which now has the capacity to produce 1,000MW boilers	26%
Transformers	Government investment programs have enhanced the attractiveness of the power and energy sector which also manufactures a wide range of power and distribution transformers	25%
Machine tools	Highly unorganised segment comprising 200 organised players and more than 500 small scale units	18%
Textile machinery	Some 500 manufacturers are supported by more than 1,500 small scale units that supply parts and accessories	10%
Turbines & generators	Increasing government focus on the power and energy sector has catalysed investment in capacity within this sector. Manufacturers have capacity to produce more than 8,000MW per year	10%
Switch & control gear	Foreign players have introduced more advanced technology within this segment	20%
Cement machinery	Six major players, each capable of manufacturing 10,000 tonnes per day of machinery, dominate the segment	12%

Light engineering – key segments

Segment	Highlights	Production growth rate
Casting & forging	India is the 4th largest producer of casting equipment with output of 10m tonnes in 2012, despite the sector being dominated by unorganised players	25%
Industrial fasteners	Mainly produce high tensile and mild steel fasteners. High tensile fastener manufacturers tend to be organised, while the mild steel segment is predominantly unorganised	8%

Trends within India's engineering sector

Diversification – Companies have started diversifying product lines and expanding into new regions to increase revenue. Key developments include:

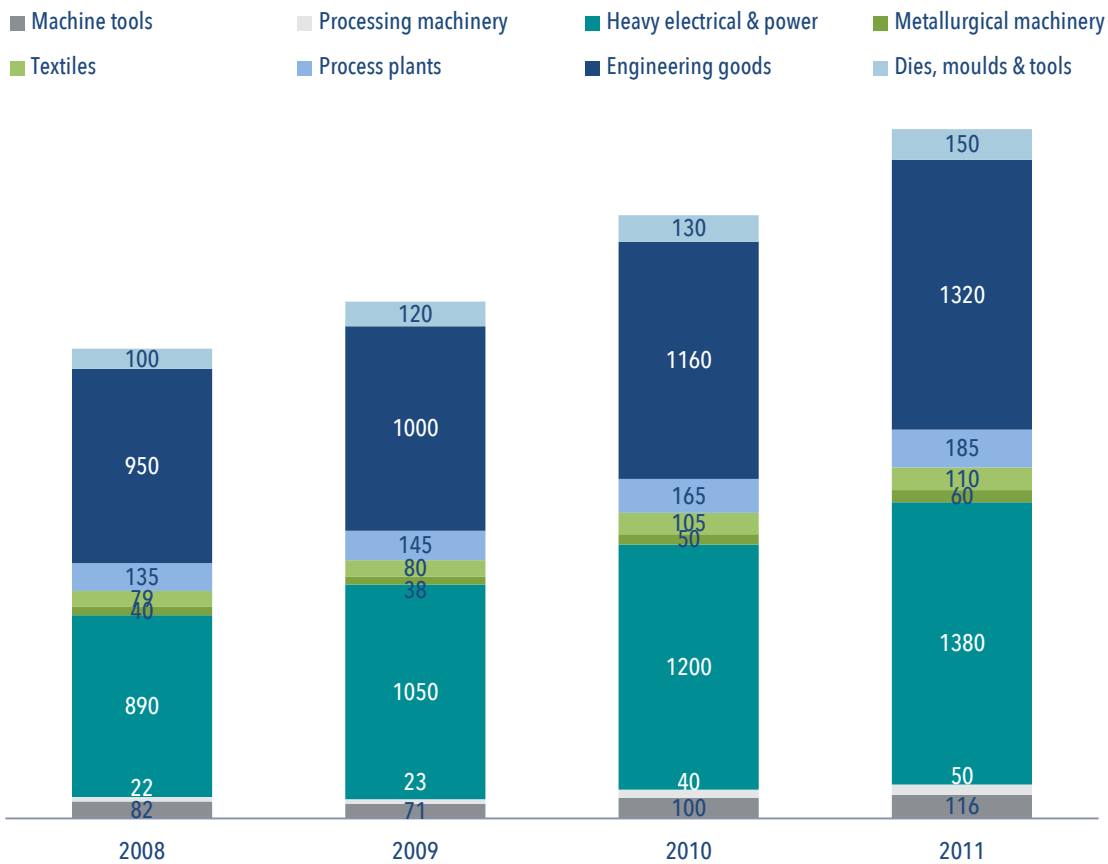
- Thermax entering the power utility segment
- L&T starting power equipment manufacturing
- Simplex Infrastructure evaluating the Middle East market
- BHEL expanding into Vietnam and Syria

Adding value – The entry of foreign players has increased competition and spurred domestic companies to invest more in technology to improve quality and production capacity.

- More domestic players are becoming ISO 9000 accredited
- Budgets are being raised for research and product development

Foreign players – Approval of foreign ownership of firms within the engineering industry has seen a number of key players such as ABB, Cummins and Alfa Laval enter India's market. This has increased the industry's overall competitiveness.

Market size of India's engineering sector (rupees, billions)



India's engineering industry was valued at 3.37 trillion rupees at the end of fiscal 2011 representing a compound annual growth rate (CAGR) of 12 per cent over the previous four years. Heavy electrical and power plant equipment and engineering goods accounted for about 80 per cent of total revenue.

Indian engineering goods are also gaining acceptance in overseas markets. The sector accounted for nearly 15 per cent of the country's total exports in 2011, with 40 per cent of this figure being generated by small and medium enterprises (SMEs). The trend of international companies shifting their manufacturing bases to markets like India that offer lower costs and skilled labour is a key driver of the country's engineering exports. This trend is expected to continue for the next five years.

Assessment of key sectors

Machine tools

This category leads the capital goods sector as it supplies machinery for the entire manufacturing sector. Most of the 800 machine tools manufacturers are SMEs. There are some 25 mid-size manufacturers who each have an annual turnover of 2bn-3bn rupees.

India currently produces general/special purpose machines such as gear-cutting machines, grinding machines, medium-sized machines, presses, pipe-bending machines, rolling machines and bending machines. Over the past three years the sector has grown with CAGR of 16 per cent. Exports only accounted for 2.5 per cent of output in 2011. Imports have increased from 40 per cent to 65 per cent of total machine tool consumption over the past decade.

Process machinery

There are 11 major manufacturers of machinery in this organised sector and nearly 200 SMEs. Major plastic process machinery includes injection moulders, blow moulders and extrusion moulders. This sector grew with CAGR of almost 30 per cent from 2008-11. About 37.5 per cent of output is exported.

Heavy electrical and power plant equipment

There are some 700 electrical machinery manufacturers in India, nearly 90 per cent of which are SMEs. The sector has posted CAGR of 15 per cent over the past three years. BHEL leads the sector which produces a wide range of equipment including transmission line towers, high-tension switchgear, transformers, motors, AC generators, conductors, capacitors and cables.

Metallurgical machinery

This includes all types of steel plant equipment such as blast furnaces, steel-melting furnaces and equipment, rolling mills and continuous casting machines. Due to the highly specialised nature of the industry, the sector comprises just a few large manufacturers such as HEC and L&T, as well as about 30 medium size companies and 170 SMEs. About 80 per cent of output is exported. The industry achieved CAGR of 25 per cent from 2008-11.

Textiles machinery

SMEs account for 85 per cent of this sector's 1,450 manufacturers. Production grew at CAGR of 5 per cent from 2008-11.

Process plant equipment

This sector has recorded CAGR of 12 per cent over the past five years. About 65 per cent of the sector's more than 200 manufacturers are SMEs. Key product categories include evaporators, stirrers, heat exchangers, towers and columns, crystallisers and furnaces.

Engineering goods

In the context of this report, engineering goods cover bearings, steel pipes and tubes, seamless pipes and tubes, nuts, bolts, rivets, castings, forgings and metal containers. The sector has achieved CAGR of 14 per cent over the past three years.

Dies, moulds and tools

This sector is highly fragmented and consists of more than 500 commercial toolmakers engaged in the design, development and manufacturing processes. Mumbai, Bangalore, Chennai, Pune, Hyderabad and the National Capital Region are the main hubs for this industry.

Key drivers of India's engineering sector

Demand for engineering goods depends largely on a country's economic growth, which itself is dependent on spending in core segments such as power, railways and infrastructure development as well as private sector investments and the speed at which projects are implemented.

India's power sector is the single largest revenue contributor for engineering companies. The power sector's performance was driven by the restructuring of state electricity boards, private sector growth and capacity development. Government projects such as the World Bank-funded Golden Quadrilateral Project and the North-South and East-West corridors, which are focused on improving infrastructure, have fuelled growth in the construction industry and the overall industrial sector.

India's sound engineering education system has provided a consistent supply of skilled labour which itself has helped drive growth across the industry. This has seen India become a preferred outsource market for global manufacturers due to its lower labour costs and better technological designing capabilities than those available in competing emerging markets.

Capacity creation across the infrastructure, oil and gas, power, mining, automobile and auto components, steel, refinery and consumer goods sectors has also driven growth. Other key factors are:

- Growth of key end-user industries for engineering products
- Government initiatives within the power and construction industries

Major export markets

China, US, UAE, Singapore, Saudi Arabia, South Africa, Germany, Sri Lanka and UK were major markets for Indian engineering exports in 2012. Engineering goods were the key export driver in 2012. Exports have continued to grow thanks to supportive government policies which have focused on promoting diversification and helping the industry move up the value chain. The rapid weakening of the rupee in the second-half of 2013 benefited foreign companies and buyers in export markets, though it increased the cost of imported capital goods and pressured margins for local firms.

The heavy engineering and machine tools industry is highly dependent on capital goods, a sector that accounts for 12 per cent of total manufacturing activity and contributes 16 per cent of gross domestic product.

Government policies continue to drive growth

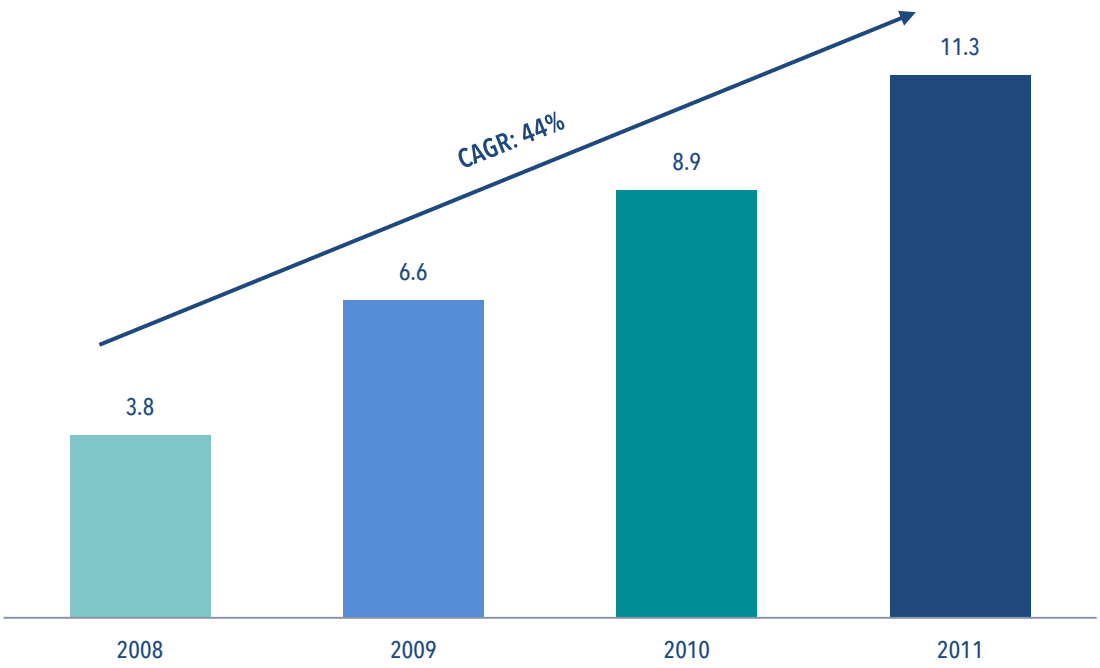
Government's focus on infrastructure development is expected to keep demand for the engineering sector high. Continued growth of manufacturing and favourable regulatory policies will further propel the sector's growth. Government forecasts contributions from foreign companies that outsource engineering services to India will reach US$40bn by 2020.

Delicensing	▪ Engineering sector liberalised allowing 100% foreign ownership of companies ▪ Foreign technology agreements are granted by default
Tarrifs & Custom Duties	▪ Protective tariffs removed for capital goods ▪ Duty reduced across a range of engineering goods
Special Economic Zones	▪ Engineering-focused SEZs established across the country ▪ Delhi Mumbai Industrial Corridor, which is being developed across seven states, should strengthen the sector

The government's decision in 2008 to allow foreign firms to fully own engineering goods and machinery manufacturers catalysed the industry. Foreign ownership has also been granted in the construction and development sectors. India has opened up private sector participation in infrastructure projects for power, roads and ports, as well as the mining and pharmaceutical sectors. Key initiatives are:

- The engineering industry receives just over one-third of total foreign direct investment in India. Foreign investments are capped at US$2m per project.
- Royalty payments are restricted to 5 per cent and 8 per cent on domestic products and exports respectively.
- Depreciation on general plant and machinery equipment is about 15 per cent.

Cumulative FDI inflow (US dollars, billions)



Key challenges facing the engineering sector

Issue	Policy developments
Shortage of skilled labour	▪ Increasing pool of available resources – Increasing intake at academic institutions ▪ Increasing quality resources – Vocational training – Introducing industry-specific courses ▪ Rationalising labour policy
Infrastructure Issues	▪ Power and water supply ▪ Infrastructure for transportation & logistics ▪ Port infrastructure ▪ Clustering for common infrastructure
High cost of capital	▪ Corpus fund for expanding, upgrading or modernising plants

SWOT analysis of the engineering sector

▪ Largest sector in India ▪ Demand driven industry ▪ Technologically advanced ▪ Skilled human resources ▪ Good location	▪ Long product development cycle ▪ Unprofessional working style ▪ Inadequate training ▪ Unorganised vendor base
▪ Strong potential for direct exports to neighbouring countries ▪ Key outsourcing destination for global companies	▪ Exposure to global markets ▪ Fluctuating raw material prices and crude oil prices ▪ Economic volatility makes project delays and cancellations commonplace

Key investment destinations and opportunities

Thermal equipment, which primarily consists of boilers and furnaces, and electricity generation and transmission equipment are the key growth segments for India's engineering industry.

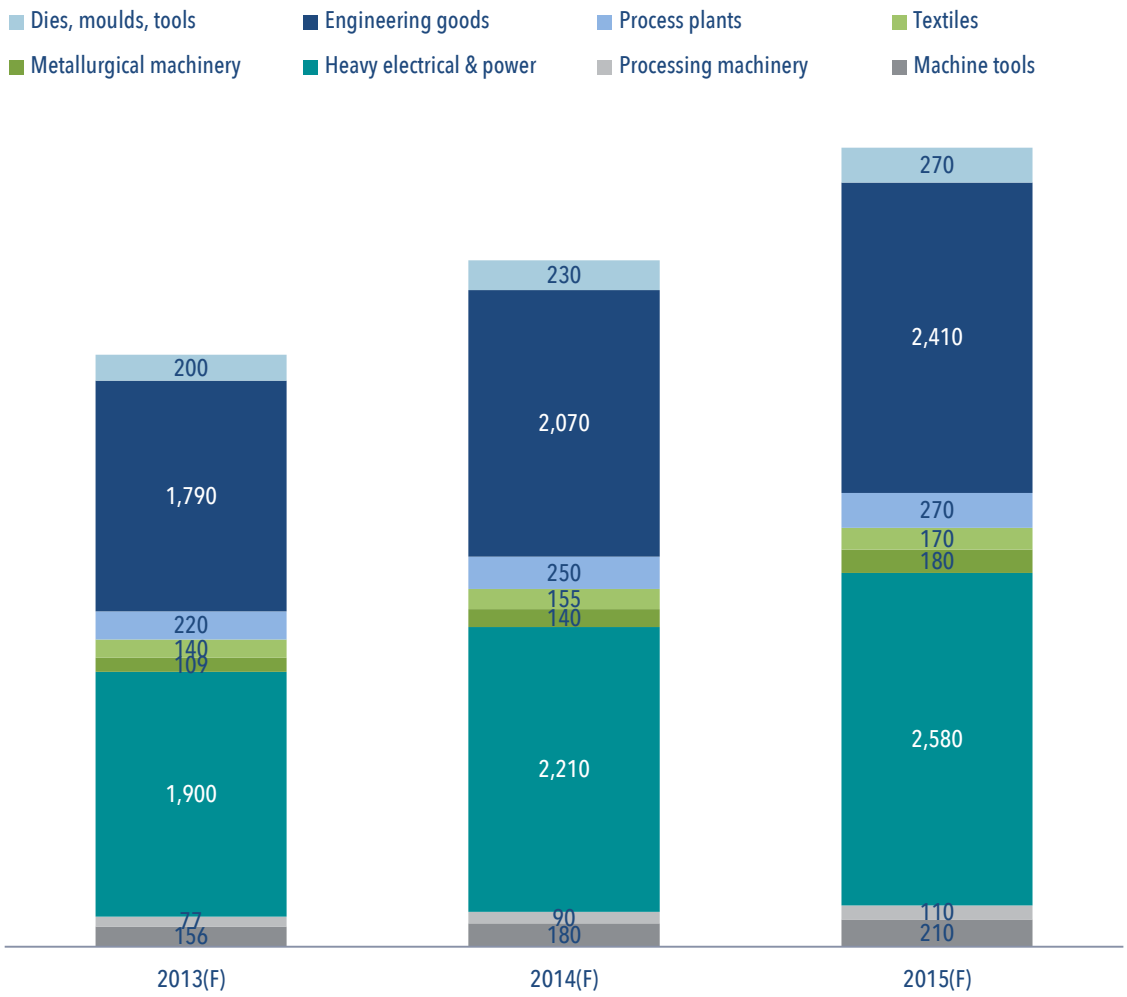
Several states are looking to attract investment in manufacturing and services through a combination of regulatory policies, infrastructure development and industrial zoning. The most attractive destinations for the engineering industry are Maharashtra, Gujarat and Tamil Nadu due to the number and size of their multi-product special industrial zones, market size and growth of user segments, availability of raw materials, strong supplier base, quality human resources and proximity to ports.

Looking forward

India's engineering sector is forecast to grow by almost 25 per cent a year for the next few years because of higher investment in infrastructure, favourable government policies and new oil and gas power and metallurgy projects.

The Department of Commerce forecasts the sector's exports will rise to US$125bn by 2014 up from US$120bn as in 2011 as Indian engineering products become more widely accepted around the world. This will be further supported by growth in the outsourcing of relevant engineering and design services to Asia.

Market size by segment (rupees, billions)



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