

**Japan Foundry Society, Inc.**

**Advances in Investment Casting –India**

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**13<sup>th</sup> WORLD CONFERENCE ON  
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# ADVANCES IN INVESTMENT CASTING – INDIA

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## Abstract:

In this paper, authors cover current scenario of investment casting industry in India. This presentation also highlights critical challenges, trends & opportunities for Indian investment casting manufacturers. India is one of the fastest growing economies in the world market. Indian IC market has grown steady in aerospace, defense, automotive & general industry. Indian manufacturers are well geared for tapping export markets in North America, Europe & Japan. Economic labor still remains key asset for Indian IC manufacturers. Gradually the Indian IC industry is changing focus on high volume products & to higher value added products.

## Introduction:

India continues to pursue rapid economic growth based mainly on strong domestic consumption and investment. India GDP growth rate estimate for 2011-12 is at 8.2% given the current adverse global circumstances and high inflation to boot, expected growth rate of 8.2% is impressive. India currently is the third-largest economy in the world at purchasing power parity. India is 2<sup>nd</sup> fastest growing economy with average growth rate of 7.3% over past 10 years and expected to outpace China in next 10 years.

Investment casting production was up for most foundries in 2011 in almost every market segment & forecast is they would remain busier for first half of 2012. A consensus estimate of 2011 investment casting business in India indicates an approximate 10-12% increase over 2010. Foundries are getting equipped with most modern equipments such as automatic & semi Automatic Wax Injection Presses, Robotic Shelling System etc.

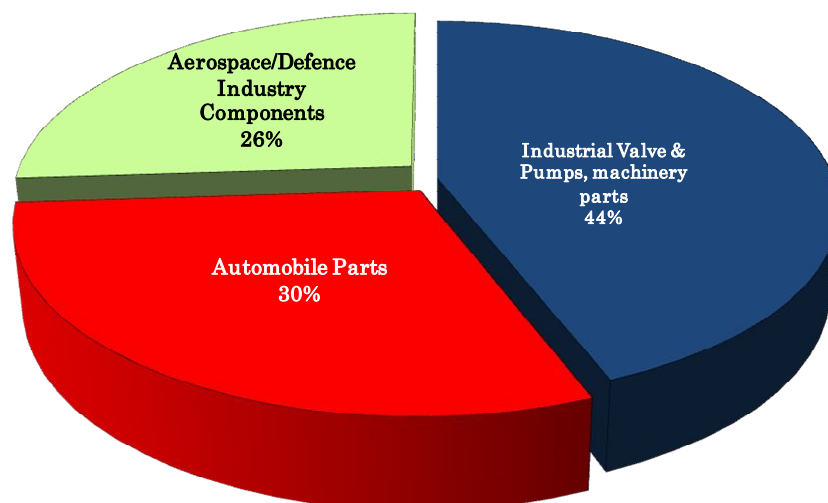


Fig.1 Sales Forecast 2012 by Commodity

### **Industrial castings valves & pumps, general engineering etc.:**

Largest percentage of air-melt investment castings produced in India is valves & pump body castings and further gas, oil, instrumentation, brewery, dairy & fittings, power generation, general engineering castings. There are approximately **200 foundries** which supply investment casting to the domestic as well as export markets, Almost 44% of the Indian investment casting market produces very successfully these investment castings at a very competitive price. Indian IC manufacturers are able to produce machined castings/parts which are finished & ready to assemble since they have fully equipped CNC machine shops with most modern and quality control equipments. Most of them also have in house testing facilities/capabilities. They have ability to handle over 200 different alloys to customized specs, ability to make large volumes which adds versatility to handle almost any conceivable cast parts. They had a very busy 2011 & most of the foundries are increasing their foundry capacity to meet future demands.

### **Automotive:**

According to recent reports, India is set to overtake Brazil to become the sixth largest passenger vehicle producer in the world, growing 16-18 percent to sell around three million units in the course of 2011-12. Automotive parts constitute 30% of the total investment castings made in India.

#### **Auto Component industry growth drivers:**

- **Increasing demand for vehicles:** Vehicle production grew to ~17.9 million in 2011. Almost all global OEMs have entered India to set up their manufacturing base.
- **Low cost & high quality standards:** India offers low labor costs which has resulted in significant cost reduction as opposed to overseas production maintaining international quality standards.
- **Availability of low-cost skilled manpower:** India generates 0.4 million engineers ever year which accounts for 26% of the world's engineering service outsourcing.
- **Govt. policy initiatives to promote growth in the sector:** De-regulation and policy initiatives such as lower excise duties, realization of VAT etc. have been implemented. FDI up to 100% is permitted through the automatic route for manufacturers of automobiles and components.

Carbon steel & Stainless Steel are the main alloys in use by air-melt automotive investment casting foundries. Non-engine components, gear assembly & transmission, peripherals are the main IC parts produced. Forecast for automotive investment casting market would be about US \$ 200 million in 2011. About US \$ 160 million would be consumed for the domestic market. Due to continued increase in prices of gasoline, auto makers are introducing fuel-efficient models including turbocharger systems etc. which will be additional market for Indian IC casters. Mr. Piyush Tamboli, vice chairman & managing director at Investment & Precision Castings Limited located at Bhavnagar in the state of Gujarat predicts a 25% growth for his company in 2012. Currently 75% of their production is auto castings for the domestic market.

It is forecasted that the automobile industry in India will grow steadily in coming years. That is shown in Table 1 and figure.2 <sup>(1)</sup>.

Table 1 Forecast of the automobile industry in India

| Sr.No | Area                   | 2009  | Expected to grow (in millions) |         |
|-------|------------------------|-------|--------------------------------|---------|
|       |                        |       | By 2015                        | By 2020 |
| 1     | Passenger Vehicles     | 2.20  | 5.00                           | 9.00    |
| 2     | Commercial Vehicles    | 0.15  | 1.40                           | 2.20    |
| 3     | Two & Three Wheelers   | 10.23 | 22.00                          | 30.00   |
| 4     | Tractors               | 0.42  | 0.70                           | 1.00    |
| 5     | Construction equipment | 0.04  | 0.10                           | 0.18    |

To be more precise about the trends, please see the below given chart:

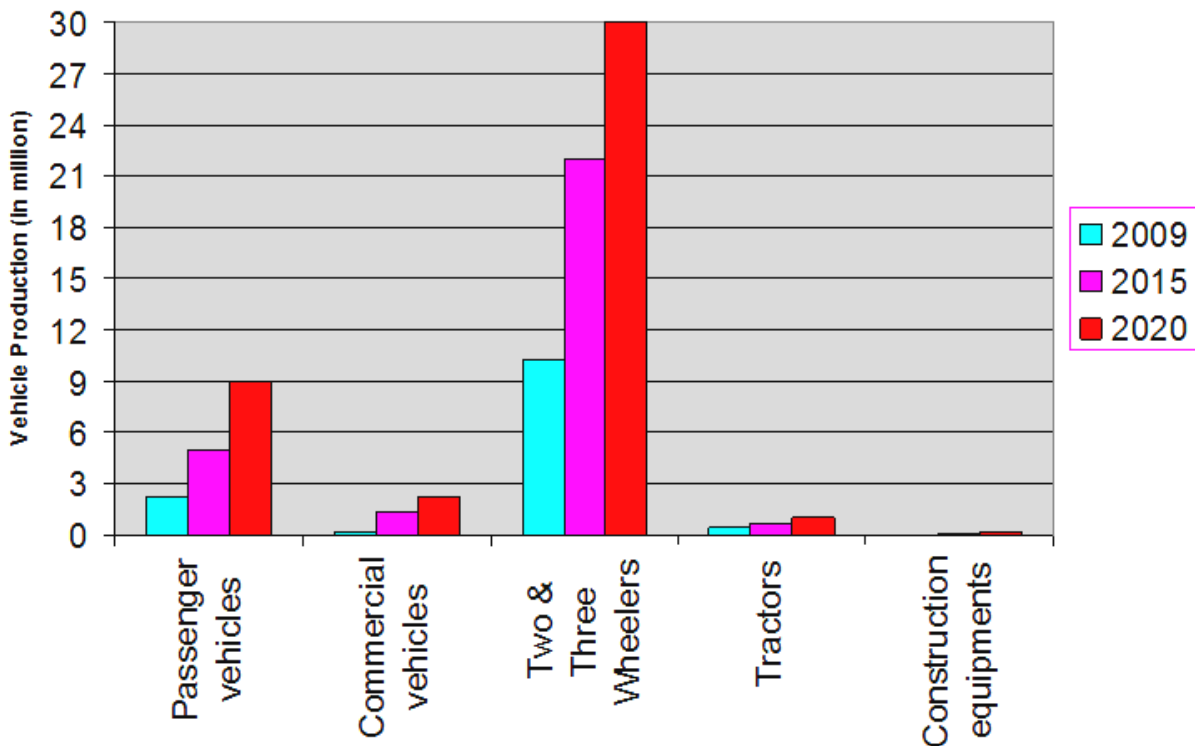


Fig.2 Forecast of the vehicle production in India

### Aerospace & Defense:

Indian aerospace and defense industry has had a smooth take-off ever since the government initiated its open skies policy a few years ago.

Indian aerospace industry is witnessing three main trends- fast growth in civil aviation, development in manufacturing (especially in private sector), and emergence of India as an aerospace technology- sourcing center.

The buoyancy is not just limited to defense. At the same time Indian strategic compulsions dictate the need for investment in military aircrafts. The Indian defense segment had been dominating the aerospace industry; however, growth in the civil segment is increasing. India's advantages are its relatively lower costs, the availability of talent, the capability that its information technology firms offer, and its location between major markets in Asia, the Middle East and Europe. Further, India's indigenous space program is an area that generates considerable industrial activity in the aerospace sector.

Overall activity in aerospace/defense investment castings has improved & increasing significantly. Private establishments are viewing this as a potential market. Privately owned investment casting foundries produce various investment castings for military applications.

Indian forecast of IC sales for 2012 in various sectors are depicted in figure 3 below.

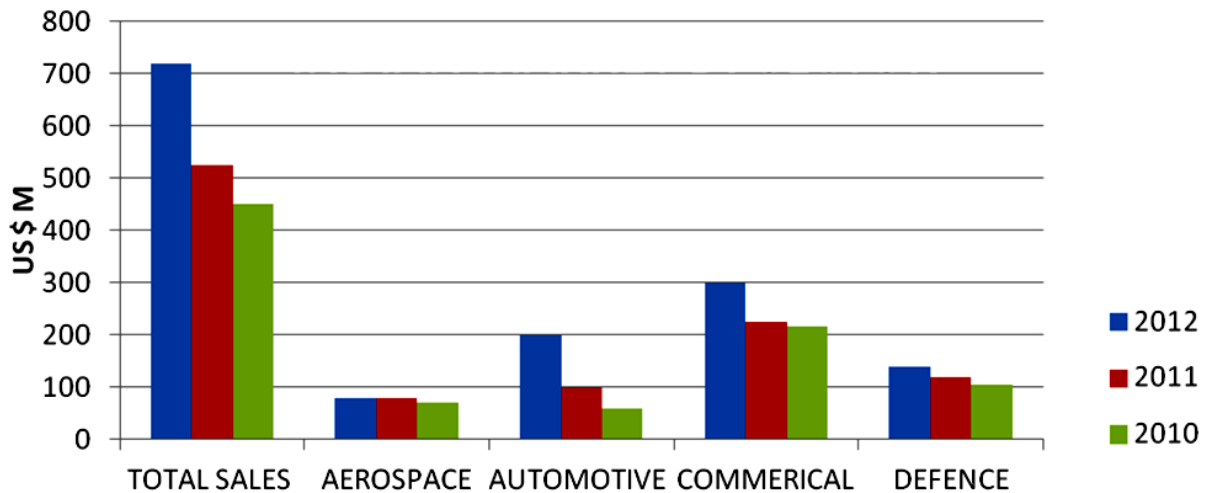


Fig.3 Forecast of IC sales for 2012 in various sectors in India

#### Forecast beyond 2011:

1. Indian investment casters are very busy on new opportunities prevailing due to general market increase & economic growth.
2. Rising cost of raw materials is a major concern for the Indian IC exporters.
3. Conversion from other processes is increasing the qty of Investment Castings.
4. Indian IC casters improving their efficiency and consistency of production by means of implementing automation in various areas of foundry process.
5. Indian IC casters are adding value, supplying on time.
6. Euro zone crisis concern for Indian IC casters. A second economic slowdown could have impact on the growth.
7. Appreciating Indian Rupee, rising energy, fuel, inflation & even labor costs are challenges for Indian investment casters in near future.
8. In coming years, infrastructure projects, automobile, power generation, will provide new opportunities for Indian IC casters.

#### Reference

- (1) Ernst & Young- Vision 2020