The automobile industry is one of the key drivers that boost the economic growth of the country. The automotive industry in India is one of the largest automotive markets in the world. The increasing growth in demand on back of rising income, expanding middle class and young population base, in addition to a large pool of skilled manpower and growing technology, will propel India to be among the world’s top five auto-producers by 2015.

The auto sector is one of the biggest job creators, both directly and indirectly. According to a report published by Deloitte, India is expected to become a major automobile manufacturing hub and the third largest market for automobiles by 2020. The December quarter of 2014-15 saw the auto sector margins drop due to intensified competition. Although passenger cars and two-wheelers performed well, tractors and large commercial vehicles dragged. But experts believe that revival in the economy and expected normal monsoon this year will give a boost to the sector. According to the credit rating agency - ICRA’s estimates, 2014-15 revenues for the industry should grow by 11-12% supported by healthy recovery by major original equipment manufacturers (OEMs) in the medium and heavy commercial vehicles (M&HCV) and passenger vehicle (PV) segment.

Steel plays a significant role in the automobile sector. Steel makes up more than half the weight of a car and is used not only for the body and chassis but also the powertrain, gearbox, wheels and tyres. Automotive high strength steel grades maintain the safety standards of vehicles whilst improving fuel efficiency, through light weighting. Manufacturers use steel because it is the strongest, most affordable material out there for the application and can be engineered in a lot of different ways to meet the needs of crash safety and the performance of the vehicle, such as how it handles.

At the same time with consolidated revenues of INR 2,32,834 crores (USD 38.9 billion) in 2013-14, Tata Motors Limited is India’s largest automobile company. It is the leader in commercial vehicles in each segment, and among the top in passenger vehicles with winning products in the compact, midsize car and utility vehicle segments. Established in 1945, Tata Motors’ presence cuts across the length and breadth of India. Over 8 million Tata vehicles ply on Indian roads, since the first rolled out in 1954. The company’s manufacturing base in India is spread across Jamshedpur, Pune, Lucknow, Pantnagar, Sanand and Dharwad. Following a strategic alliance with Fiat in 2005, it has set up an industrial joint venture with Fiat Group Automobiles at Ranjangaon (Maharashtra) to produce both Fiat and Tata cars and Fiat powertrains.

At present Mr. Udayan Pathak is Assistant General Manager – Materials Engineering, working in Engineering Research Centre, Tata Motors Limited, Pune. Mr. Pathak is leading the Team of Materials Engineering professionals dedicated for Current Product Quality Improvements, Cost reduction through VAVE, Design Inputs, New Technology Projects. He is working on non-conventional Materials & Concepts, like Thermo Electric Materials & Devices, Light Weighting, PV Materials, Computational Metallurgy, Center of Excellence for Tribology, Forgings & Functional Fluids and VA/VE, since May 2008. At the same time he is associated with several associations like Consortium member on “Vision Document & Road Map for Light Materials usage for Automotive Applications” – initiative of AMPRI & CSIR; Member Indo – Norway & Indo – Australian Light Weighting Consortium etc. Mr. Pathak is also past secretary, ASM (American Society of Materials) International, Pune Chapter.

“With Hon. Prime Minister Narendra Modi’s mission “Make in India” the production volumes will pick up sharply in balance part of current financial year & will continue in next fiscal year. Due to the presence of many MNC automotive players, these numbers can further increase with export, for which some incentives are expected in upcoming budget”, says Udayan Pathak, Assistant General Manager – Materials Engineering, Tata Motors Limited in an exclusive interview to Steelworld.

Excerpts:
What is the present status of the automobile industry in India?

After recent recessionary trends Automotive Industry, Indian Automotive Industry is picking up. During January 2015 there was overall growth of 1.66% with manufacturing of 16,50382 vehicles of all class. The growth in commercial sector is highest, 5.3 % with 52, 481 vehicles. This followed by 3.14% growth in passengers vehicles with impressive 1,69,300 units. Two wheelers showed 1.07% growth producing 13, 27,957 nos. This is data released by SIAM.

How do you see the future prospect of the automobile industry?

There is stable single party government at Centre. This gives them free hand for policy decision. With Hon. Prime Minister Narendra Modi’s mission “Make in India” the production volumes will pick up sharply in balance part of current financial year & will continue in next fiscal year. Due to the presence of many MNC automotive players, these numbers can further increase with export, for which some incentives are expected in upcoming budget. Also Indian economy is expected to be surpassing China in next two three years. Surface Transport Minister, Nitin Gadkari too has announced ambitious plans of Infrastructure development. With all these favourable factors, there are good signs of upward swing for Automotive Industry at least for next five years.

There have been many changes in the auto manufacturing industry with the consideration like lightweight, aerodynamic models, fuel efficiency etc. How do you see the future trend in continuation with these?

India was lagging little bit compared to countries in EU & Americas for Vehicle pollution norms. New govt. policies are indicative of catching up with developed countries & recovering this lag; which means vehicle has to be fuel efficient. Fuel efficiency can be achieved through light weighting, aerodynamic shapes and Engine Management. This also means enhanced temperatures of engine and exhausts. So, need for High Temperature materials will also go up.

All these engineering challenges have another dimension of changing equation of Profits. Up to first decade of 21st century, the dominant equation was “Sale Price = Cost + Profit” now it is “Profit = Sale Price – Cost”. This has put pressure on Industry to reduce costs. There is good opportunity to optimize the alloy content of high temperature materials, space for High Strength & Advanced High Strength steels. Also, there is opportunity to explore low cost alloying elements to meet mechanical properties. Usage of computational thermodynamics can help to achieve this.

How the above will impact the steel requirement from auto industry in terms of quantity and quality?

Obviously, increasing volumes means higher needs for steel. Quality of steels is not being talked at all nowadays. It is hygiene factor, no more USP for any steel mill. In fact, now customer is looking for consistency & close band tolerance, so that they can set their processes & remove the variability in steel as one of the factor affecting process consistency for component processes like Heat Treatment etc.

A lot is being talked about microalloyed steel like lightweight steel etc. Can you throw some light on this?

As already discussed, future focus is on weight reduction of vehicle, not only in Europe & Americas but also in Asia more specific in India. This can be achieved through usage of HSS & AHSS.

Another factor steel industry must be alert about is competition from Aluminium. So far it was thought, that since electric consumption per kg of Aluminium is huge compared to Steel, it is not eco friendly. However, availability of secondary Aluminium with adequate quality is increasing. Compared to steel power consumption per kg of Secondary Aluminium is very low & this barrier is now over. Although this is so far situation in Europe & Americas, very soon it will be in India too.

How do you see steel buying pattern of auto majors?

Buy & large pattern will remain same for the next one year. But with government focus on passenger safety, the content of HSS & AHSS will definitely go up to meet crash requirement which may significantly affect buying pattern. Of course it depends on how quickly government enforces this policy.