



Robust Growth in Auto Sector to Drive Aluminium Extrusion Demand in India

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The Indian aluminium extrusions industry has witnessed a phenomenal growth over the last eight years due to growing demand from auto and engineering sectors. Both these consumption sectors have grown several times since 2010 with increased innovations for new applications of metal extrusion resulting into proportionate boost in demand of extruded products. Indian engineering and auto industries have also invested immensely in the research and development (R&D) which has started yielding positive results now.

Industry size

The aluminium extrusion industry in India has witnessed a growth of 150% over the last eight years from 300,000 tonnes in 2010 to 800,000 tonnes in 2018. Demand of extruded products however moves in tandem with the growth in industrial sector which also reflects the progress in the Indian economy. Its demand in India is still growing strong inspite of economic fluctuations over the last few years. The building & construction industry is the major consumer of aluminium extrusions in India. Future growth will come largely from the solar industry and the industrial sector. Usage in the automotive industry is still in a nascent stage. The extrusion industry is primarily divided into three major parts based on its

consumption. While construction constitutes 60%, consumption from industrial and transportation building comprise 28% and 12% of overall extrusion consumption respectively.

Currently the 5th largest passenger car producer and 8th largest commercial vehicle producer in the automotive world, the Indian auto industry has grown at a CAGR of 16% in the last five years. India is now an export base for many global auto telecom majors. Still, aluminium usage is still at a nascent stage in India. Current usage of aluminium extrusions is restricted to engine mounts, radiator frames, automotive production brake components, seat frames and a few others.

As opposed to the average aluminium extrusions usage of 11.5 kg in Europe in passenger cars, the usage in India is as low as 2 to 3 kg per car. Even cars manufactured by European/American manufacturers like Volkswagen, Renault, General Motors & Ford have very low usage of aluminium extrusions. Supply to this industry would require tough tolerance adherence, extremely well 417 - documented production procedures.

Growing consumption

Growing population density has

created a need for vertical construction as horizontal construction has offered restrictions, resulting into hardening the spread in the real estate sector. Lack of space due to exponential rise in population in urban areas has not only given way to taller buildings with more floors, but also stresses on the fact that the construction has to be faster. The use of steel in high rise buildings comes into vogue. High rise buildings or multi-storey buildings, built completely in steel or primarily with steel are fairly limited in India, and may even be viewed as some "new concept in the construction industry" but, as per history the first steel frame skyscraper was the Home Insurance Building (originally 10 storey with a height of 42 m or 138 ft) in Chicago, Illinois in 1885. Even the Empire State building in New York, and many popular landmarks of the world were built decades ago using steel construction. Building a high rise or any multi-level building demands the use of light-weight yet strong materials. Steel, by virtue of its high strength to weight ratio enables large spans and light weight construction. Steel structures can have a variety of structural forms like braced frames and moment resistant frames suitable to meet the specific requirements of higher buildings. Taller buildings also face higher wind loads, and hence steel being flexible, allows the building to move and deflect with the wind forces, rather than making it rigid like concrete. Building tall with steel also allows more floors per total height of the building. This is due to the fact that

the building structure in steel is lighter and more efficient, and has beams that are not required to be as deep as those of concrete to support the floors. The ability to have lighter sections, allowing the same load bearing capacity per floor, allows space for almost 1.5 extra floors in the same over-all external height of the building.

Apart from that continuous innovations in auto and construction sectors have given an urgency for investment on research and development for launch of restructured extruded products for customized uses. In an environment where green buildings are talk of the day, aluminium extrusions are present for a number of green solutions in buildings. This include those for Double skin curtain walling, Photo Voltaic integrated systems, thermal breaks, sun light louvers and unitized solutions.

The engineering industry in India has witnessed an extraordinary growth in the last few years as a result of increased investment in infrastructure development and industrial production. Growth in the domestic engineering industry has been fuelled by growth in key end-user industries and many new projects undertaken in various core industries such as railways, power, and infrastructure. The engineering industry plays a significant role in the development of other industrial sectors in the economy. This sector is very closely linked with the manufacturing and infrastructure sectors of the economy.

A highly fragmented industry

Extruded aluminium products are used basically for facades and windows for which consultants and architects draw plan and fabricators bring in additional strength for sales and promotion of these products in construction sector. The huge demand of extruded products in the construction sectors got a boost with the number of metros being launched in different cities and the recent emphasis of the government on low cost housing projects. Aluminium extrusions score due to their energy efficiency, non-corrosive nature, supreme finishes, functionality and space utility. The metal's lightweight and low density (1/3rd of copper or steel) whilst being one of the strongest construction materials, eliminates the



need of addition of any extra weight to the building. Buildings in highly seismic zones also benefit from this reduced weight of aluminium extrusions (since seismic forces are proportional to the structure weight). The common use of aluminium extrusions in the design of impact and blast resistant doors and windows has also been noticed. Other factors include aluminium's ready availability, its versatility in getting extruded in various shapes and its durability which is much longer as compared to other materials like steel. The feasibility of more complex shapes, wider sections and tighter tolerances are making the extrusions more popular and a noted shift has been found in the attitude of the buyers who are focussing towards 'solutions' rather than just picking up 'off-the-shelf profiles'. Aluminium extrusions are also receptive to high-performance architectural coatings which help in maintenance-free performance. Interestingly, with both building and construction sectors becoming more quality conscious, today architects and builders interacting with the extruders directly for supply of profiles. Keeping this in mind, Hindalco Industries Limited - the world's largest aluminium rolling company, one of the biggest producers of primary aluminium in Asia and a lead producer of aluminium conducts 'Architects and Builders' meets to edify and inform architects and builders about aluminium as a B&C material.

Complex challenges

Despite enormous opportunities with growing innovations in the Indian extrusion sector, the industry faces huge challenges also. Aluminium is still used only for simple applications at present in India. But, aluminium extrusion should be used for complex applications also on large scale. A small market by itself, the aluminium extrusions are catered to through imports due to lesser technical

knowhow in India than in Europe and the United States of America. In India, customers prefer to buy "off the shelf" products. This will have to change with more industrial applications coming in. Price is a key driving factor and India is amongst the most price sensitive markets in the world. Quality extrusions will cost more, but pays in the long run. Over and above, customers evaluate the whole life costs while deciding where to buy from.

Additionally, building industry is the largest consumer of extrusions Construction is now moving heavily into Tier II and Tier Building Industry III cities in addition to Tier I cities. Current demand for extrusions from this sector is largely for simple door & window sections. The usage of building systems and unitized systems are yet to gain large scale acceptance in the market Solar Power. Building & Construction sector is becoming more quality conscious architects / big builders are directly interacting with extruders for supply of profiles. But, the market is going ahead with rapid product improvement with some of changes happening include: wider sections, more complex shapes, tighter tolerances etc. Focus towards buying 'Solutions' rather than 'off the shelf profiles' is also increasing simultaneously.

Future roadmap

With a large population & high solar installation, India is an ideal location for solar energy production. In 2009, India unveiled a plan to produce 20GW of solar power by 2020. Current production from solar power is less than 1 GW. Therefore, aluminium is the metal of choice for the Solar Panels being manufactured. Thus, about 40-50 tonnes of extrusions are used for mounting systems per MW of installation. Reducing the carbon footprint will influence all businesses is another area where extrusion finds a good demand. The government of India has announced 25% reduction in the emission intensity by 2020 for which measures to be taken includes: mandatory fuel efficiency for vehicles by 2011 Model energy conservation codes for buildings & recommend states to make this mandatory clean technology in power generation Increase the forest cover.