Re-imagining Sustainability with Stainless Steel

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Jindal Stainless Group is a part of USD 22 Billion OP Jindal Group. Jindal Stainless is one of the largest stainless steel producing groups in India and ranks amongst the top 10 in the world. Jindal Stainless group has an annual crude steel capacity of 1.6 MTPA and an annual turnover of USD 3.1 Billion.

Established in 1975 by Late Shri OP Jindal, the group has two plants at Jajpur (Odisha) and Hisar (Haryana) which come under Jindal Stainless Ltd. (JSL) and Jindal Stainless (Hisar) Ltd (JSHL) respectively. The Hisar plant is India's first stainless steel manufacturing unit. It is also the world's largest producer of stainless steel strips for razor blades and India's largest producer of coin blanks, serving the needs of India and international mints. JSHL's specialty product division caters to the high end precision and specialty stainless steel requirements of reputed Indian and International customers.

Masterbuilder had one to one chat with Mr. Vijay Sharma, Senior Vice President, Sales, Jindal Stainless wherein he shared insights on the demand of stainless steel, its advantage and much more.

Here are the excerpts from the interview.

Discuss the core sectors where stainless steel demand is seen surging?

The per capita consumption of stainless steel in India stands at a meager 2 kg, as compared to the global average of ~6 kg. This void proves to be a well of untapped opportunities for the metal. The demand for stainless steel in India is rising at a rate of nearly 8-9% annually since last 5 years. This can be attributed to a wide range of applications of the metal across sectors.

Architecture, Building, Construction (ABC)

I. The ABC segment constitutes nearly 20% of the Indian stainless steel demand. Stainless steel is the new age solution for developing smart cities. Given its properties of corrosion resistance, aesthetic prominence, and structural strength coupled with safety, stainless steel is increasingly being adopted for developing malls, airports, bridges, and buildings.
II. India has a vast coastline of nearly 7500 km. The infrastructure around this region needs to be corrosion-proof, with minimal maintenance requirement. Stainless steel is the best alternative for the structures like foot-over bridges, Railway bridges and other civic infrastructure.

Automobiles

I. The Indian automobile sector is pegged to grow at a rate of 15 per cent per annum, providing enough scope of growth to domestic producers of stainless steel. Post government's decision to enforce Bharat Stage (BS) VI automobile norms in 2020 in India, stainless steel has proven to be an efficient alternative material in exhaust to counter environmental damage by vehicular emissions.
II. A high strength-to-weight ratio, improved slide-ability, higher weldability, endurance to thermal fatigue, fire resistance (ability to withstand temperatures in excess of 900 degrees centigrade), and corrosion resistance, even in wet abrasive appli-

cations, make stainless steel the optimum choice for usage in the automotive sector. This also makes stainless steel the most fuel efficient and the safest option for automobiles.

III. Major auto parts like vehicle exhausts, fuel tanks, disk brakes, catalytic converters, and specialized parts of diesel turbochargers can be made in stainless steel. In India, two-wheelers and passenger vehicles have already shifted to stainless steel exhausts. In commercial vehicles, its usage is still at a nascent stage; however with the introduction of BSVI norms in 2020, usage of stainless steel in exhausts is expected to increase up to 40 kgs/vehicle.

Railways

I. Given its resistance to corrosion, heat, pressure, and ageing, stainless steel finds application in railway wagon and coach manufacturing as a preferred alternative to mild steel. Jindal Stainless holds majority market shares of 70% and 60% in the stainless steel wagon and coach segments, respectively. Compared to the 15-20 years' life of mild steel, stainless steel wagons and coaches last up to 45 years.

II. With the highest strength-to-weight ratio, impeccable impact resistance, and high temperature absorption capability, stainless steel is the key raw material for metro coaches and infrastructure, across the nation. Jindal Stainless has contributed in the development of Delhi Metro and MAHA metro.

III. Stainless steel is also increasingly been used for railway infrastructure; bridges, foot-over-bridges, benches, water coolers, etc. The upcoming stainless steel foot-over-bridge at Bhayandar railway station in Mumbai will be the first of its kind.

Transport

I. The use of stainless steel in public transport system has been widely accepted worldwide on account of its sterling features providing safety, aesthetics, light weight, fuel efficiency and sustainability. Today, stainless steel is increasingly being used in the construction of structural parts, side panels, flooring and luggage compartments of medium and long distance buses.

Apart from these, certain other high demand segments for stainless steel include kitchenware (40% of the total stainless steel demand), process industries, and white goods sector. Jindal Stainless has also ventured into nuclear and defence applications by providing stainless steel to BARC and the Indian defence forces.

Enlighten on the life cycle cost advantages of stainless steel?

Unlike most of its competitor metals, stainless steel has the added advantage of a longer life cycle in various applications. Given a higher resistance to corrosion and temperatures, stainless steel helps bring down maintenance costs of architectural and transport infrastructure. This ensures lower life cycle costs for stainless steel. Moreover, stainless steel is nearly 100% recyclable and apt for long lasting infrastructural applications.

Stainless steel requires negligible maintenance throughout its life cycle. It neither requires painting, polishing and is an all weather metal.

On an average a stainless steel railway coach has life of over 40 years compared to mild steel coach which requires maintenance every year.

A recent example of stainless steel's endurance to saline environment is China's 55 km long Hongkong – Zhuhai – Macau bridge using around 10,000 tonnes of duplex stainless steel rebars, among other metals. The metal is expected to ensure a projected life of 120 years for the structure, which will be under constant corrosive attack of saline sea water.

Around 90% of Indian buildings can be made in stainless steel, majorly because stainless steel is completely recyclable and has anti-microbial properties. Moreover, India is a four-season country with its own dynamics, enabling brown-field and green-field expansion at the same place. Hence, by using stainless steel, the buildings become energy-, water-, and material-efficient apart from being sustainable at the same time.

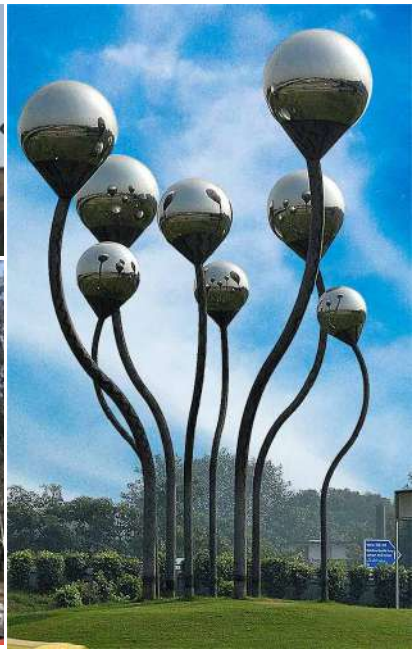
Inform us about a few recent projects wherein stainless steel is being used?

Some of the major projects are:

1. Railway Coaches: The revolutionary Train 18, a.k.a. Vande Bharat Express, uses stainless steel shells supplied by Jindal Stainless.
2. Delhi and MAHA Metro: The metro projects extensively use stainless steel for their coaches and station infrastructure. Jindal Stainless has partnered with the Delhi and MAHA metro projects to provide efficient stainless steel solutions.
3. Railway Wagons: Presently, the total number of wagons in the country is over 2,00,000. In the next 5 years, Indian Railways plans to procure ~1,00,000 wagons, each needing around 8-10 tonnes of stainless steel, depending on the model and design. Jindal Stainless is a decade-long partner of the Indian Railways, supplying stainless steel components for railway wagons.
4. Bridges: Given its inherent corrosion

resistance in extreme environments, stainless steel is apt for infrastructure applications is coastal areas. The Progreso Pier in Mexico is a prominent example of long lasting stainless steel wonders. The metal is also being used by the Indian railways for railway infrastructure (bridges, foot-over bridges, benches, etc.)

5. Water and processing industry: Stainless steel is increasingly being adopted by the processing industry. Water storage tanks and water purification equipment also rely on stainless steel.
6. Healthcare and Cleanliness: Given the recyclable, hygienic, and inert nature of stainless steel, coupled with an aesthetic appearance, the metal finds applications in public dustbins, surgical equipment, and even food processing.
7. Public infrastructure: Bus stands, roofing solutions, and street furniture and sculptures are coming up in stainless steel.



What are the advantages of stainless steel roofing sheets?

With the inherent corrosion resistance of stainless steel, roofing sheets in the metal are a far better alternative as compared to Zinc -Aluminium or Zinc coated sheets. Additionally, stainless steel sheets have a lower thermal temperature coefficient, making them efficiently resistant to fire. Moreover, stainless steel is inert in nature. This property makes stainless steel sheets weather proof, rendering a high end life value to the metal. Stainless steel sheets also offer a better mechanical strength as compared to other metals.

Discuss about the USP of decorative and color coated stainless steel?

Although stainless steel boasts of an inherent and impeccable corrosion resistance, it does not shy away from an additional colour coating that adds to the aesthetics of the metal sheets. This is in contrast to the Zinc or Zinc-Aluminium coatings that are inevitable to prevent corrosion in carbon steel sheets. Stainless steel sheets are light-weight and crack resistant. Also, unlike Aluminium sheets, stainless steel sheets have a higher strength due to their firm built. In addition to this, stainless steel sheets are weather/surroundings-proof, proving to be a much better alternative with longer life. With negligible maintenance and life cycle costs, stainless steel sheets prove to be an economical choice as compared to its competitor materials. In industrial or highly corrosion-prone applications, aesthetics become a secondary aspect, while preventing corrosion becomes the primary concern; stainless steel corrugated sheets are hence preferred. ▪