Stainless steel leads the wave of value addition in the steel industry

Rattan Jindal April 25, 2018

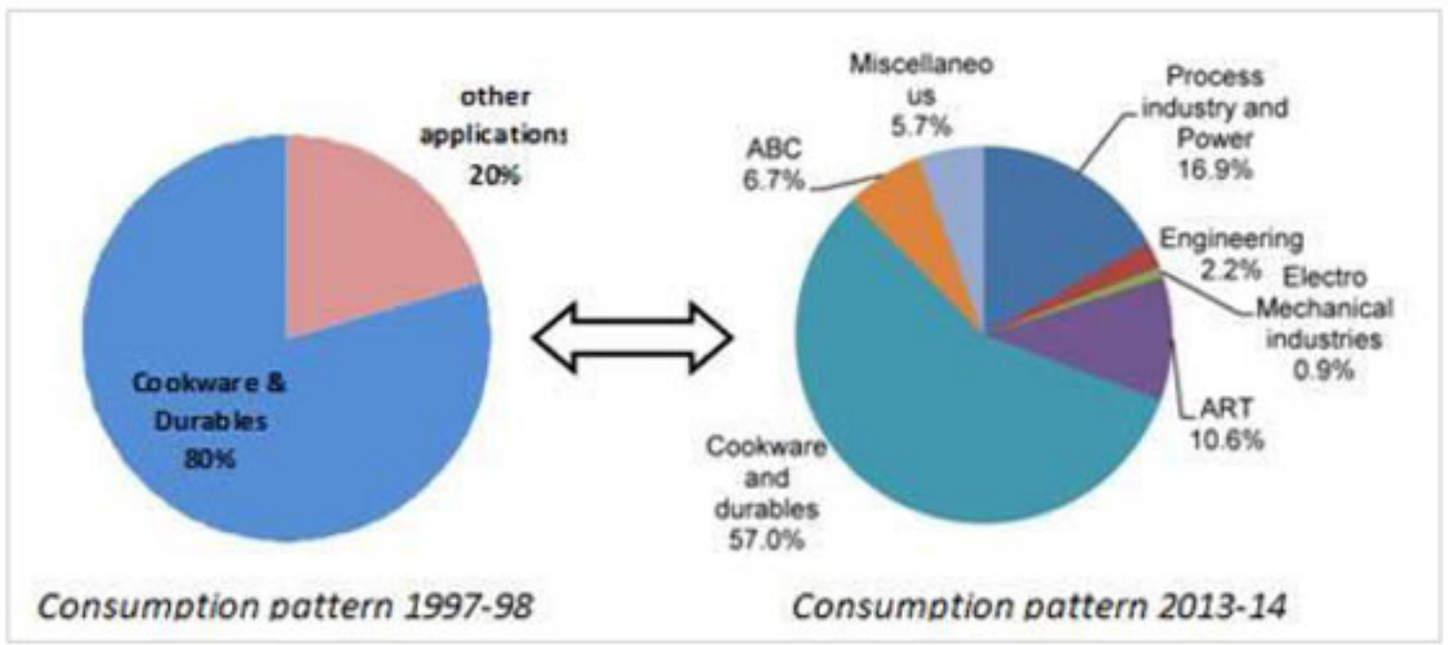
It was a year for steel. In 2017, India crossed the 100 million tonne (MT) mark in crude steel production. As for stainless steel, the country secured the second largest producer tag, next only to China. Stainless steel production in the country touched 3.6 MT during the year, registering an annual growth rate of 10 per cent.

The consumption of stainless steel in a country is organically linked to its economic development. Going by India's GDP growth rate, and the fact that our per capita consumption of stainless steel is 2 kg as against the world average of 6 kg, it is evident that stainless steel has ample scope for growth. In the age of constant value addition coupled with environment consciousness, stainless steel is the most practical and optimal choice among all materials.

Stainless Steel: The value maximizer

Throughout history, humans have been hungry for improvement. From cars to homes to public utilities, we want everything to be aesthetic and efficient. This ever-rising public aspiration in all spheres of life is the inflection point that the stainless steel industry has been looking forward to. Because stainless steel is a metal that can cater to varied present and future needs.

Unlike other alternatives including carbon steel, cement, plastics, glass, and aluminium composites, stainless steel is non-corrosive and self-repairing by its inherent nature. This validates why there has been a major transformation in the end use profile of stainless steel over the last few decades:



Automotive, Railway & Transport (ART) sector: The high strength-to-weight ratio and resistance to impact and temperature shocks makes stainless steel the most fuel efficient and safe option in the ART sector. While developed nations deploy 19 per cent stainless steel in motor vehicles, developing countries consume it to the tune of 5 per cent. This number is set to increase with the Euro VI norms kicking in by 2020, which can't be implemented without stainless steel exhausts. The Indian Railways, which plans to convert 55,000 normal train coaches to the significantly safer LHB technology, can't do so without using stainless steel coaches.

The Indian ART sector is adding value at each stage, and stainless steel is steadily gaining momentum. Jindal Stainless is already supplying material for bus bodies and fuel tanks. We're fast replacing plastics in this segment. Where plastic fuel tanks withstand temperatures up to 100 degree centigrade, those made of stainless steel can withstand up to 1000 degree centigrade. Besides, plastics are environmentally hazardous.

Architecture, Building & Construction (ABC) sector: Stainless steel ups the value game in this sector by its proven track record in longevity, non-corrosion and hygiene. The National Steel Policy 2017, therefore, emphasises use of stainless steel in public health and seismic and coastal zones.

Successful experiments in cities like Tokyo and Taipei demonstrate how distribution losses of water can reduce from around 40 per cent to 2 per cent, if we replace cement and carbon steel pipelines with stainless steel pipelines. Stainless steel plays a pivotal role in the national imperative of swachh bharat and river rejuvenation. Creating long-lasting and sturdy infrastructure for water conservation, including sewage, waste and effluent treatment plants, necessarily requires high grade stainless steel.

Growing annually at 13 per cent, the ABC sector is teeming with opportunities. Residential and commercial real estate projects, retail spaces, entertainment avenues, hospitality, healthcare and urban infrastructure are extensively using stainless steel. There's no doubting that the foundations of smart cities will be laid in stainless steel products. The special finishes available in stainless steel, one of the latest value-adds gaining market traction in the form of coloured sheets and anti-skid floors, combine utilitarian benefits with pure aesthetic delight.

Process Industries: Maintenance free long life and flawless hygiene characteristics of stainless steel make it an ideal choice for process industries. Food processing, for instance, relies heavily on stainless steel. More and more industries, such as refineries, petrochemical, power, textile, cement, drugs, paper are switching to stainless for these reasons.

Stainless steel is increasingly being consumed to produce clean energy. Desalination, which will pave the way through future water crises, is based on stainless steel. Flue-gas desulfurization, or FGD, a process that removes sulfur dioxide from exhausts, is also impossible without stainless steel. The metal is also gaining ground in nuclear power. Jindal Stainless is one of the two stainless steel suppliers in the world selected to supply 1,100 tons of stainless steel to the prestigious International Thermonuclear Experimental Reactor's Cryostat Project in France.

The possibility of endless diversification

The high impact toughness, crash worthiness, superior weldability, formability, free maintenance, and higher elongation of stainless steel makes it a favourite choice for end users as well as manufacturers. Medical advancement, including surgical instruments, artificial stents, and knee and joint implants, draws heavily from the benefits of stainless steel. Recently, Jindal Stainless developed a special grade of high-nitrogen stainless steel for the defence sector in collaboration with Defence Metallurgical Research Laboratory.

Given its ability to offer immense scope for diversification, stainless steel is poised to be the metal of the future.

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