

Stainless steel: The harbinger for progress

Research and development is the backbone of upstream improvement in any industry. It paves the way for the industry to predict customer needs even before they become evident. In the wake of intense competition and ever changing customer needs, replication is merely a business necessity and not a growth catalyst anymore. Disruptive innovations in sustainable design, engineering and manufacturing, backed with research, will be the key enablers for businesses to compete at the top of the value chain in a globalised market.

R&D – the cornerstone of progress

Industry leaders globally, rely on Research & Development (R&D) and innovation to propel staggering growth. One of the driving factors behind 3M's success is its consistent focus on innovation. Tesla spends almost 18% of its revenue on research and development, which is nearly thrice the percentage spent by other leading automakers. All key players in the pharmaceutical industry focus a great deal on R&D, leading to better quality healthcare and increased life expectancy.

In the current scenario, India spends less than 1% of its GDP on R&D while Israel and Korea lead the way with 4.21% and 4.15% of GDP spends on R&D respectively. Moreover, government spends on



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 Managing Director, Jindal Stainless

R&D are significantly higher than private spends in India, contrary to the trends of the global R&D investment leaders. However, it's time that Indian industries in the private sector shift this balance.

The ethos of innovation at Jindal Stainless

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industry. This is achieved through continuous upgradation of quality, processes, services and product innovation to develop new products at competitive costs. Cross-fertilization of knowledge between production, quality control and commercial units in order to maintain global standards has been the guiding principle of our R&D function.

The defence sector in India receives R&D support mainly from the government. However, Jindal Stainless is a forerunner in researching to enhance domestic capabilities for catering to this strategically important sector. A mine trawl is a de-mining device mounted on a tank or armoured personnel carrier, designed to detonate anti-tank mines and clear a lane through a minefield which is protected by enemy fire. We are the first Indian steel company to supply high nitrogen steel for mine trawl application, after successful testing by Defense Research and Development Organisation (DRDO). We are also working on the development of ultra high strength steel for armour application to provide a cost competitive substitute to expensive imported armour grades.

We are determined to reinforce the 'Make in India' initiative by upgrading our product offerings to replace expensive or imported steels with superior and cost effective domestic variants. Our special variants developed for air filtering industry and paper & pulp industry stand

testimony to this resolve. Due to high strength, durability and corrosion resistance, one of our super austenitic stainless steels is the preferred choice for air filter application, especially in corrosive environments.

We are also one of the few companies in the world that has developed a stainless steel variant which provides an economical but more corrosion resistant alternative to the steel used in paper & pulp industry.

One of the breakthrough uses of our stainless steel is in mirror polishing application, where it can replace glass and exhibit superior capabilities to withstand natural calamities. Our R&D team is also credited with making Jindal Stainless the first company in India and one of the few companies in the world to develop a critical grade of stainless steel with extremely high corrosion resistance, making it the natural choice for submersible water pumps in sea water.

Constant pursuit of excellence motivates us to re-innovate to make our products better suited to customer needs. Our stabilized ferritic stainless steel Grade 444 has become a popular alternative to Grade 316 due to its high pitting and crevice corrosion resistance. It finds extensive application in a wide array of industries like food processing, brewery and wine-making equipment, hot-water tanks, heat exchanger tubing and automotive components.

Our highly advanced creep resistant grade for super critical thermal power plant exhibits excellent elevated-temperature strength and creep behaviour up to 600 °C. In addition, the reduced weight of boiler and piping components, resulting from the steel's superior performance compared with other standard steels, allows higher resistance to thermal

fatigue, higher heat transfer and lower thermal expansion coefficients. It has been tested successfully and is in the process of commercialization.

The magic metal of the future

The world is taking notice of India which is now the second largest producer and consumer of stainless steel, globally. Indian per capita consumption of stainless steel at 2 kg against the world average of 6 kg poses further opportunities for growth. Stainless steel is on the verge of becoming the magic metal of the future due to its immense scope for diversification. High corrosion resistance, superior weldability, formability, high impact toughness, free maintenance and crash worthiness make it preferred choice for environment-friendly and sustainable development.

Clean energy production is on the rise and stainless steel is the increasingly coveted metal to augment this growth. The metal is also gaining ground in nuclear power generation. Processes like desalination, which will pave the way through future water crises, and flue-gas desulfurization, or FGD, which removes sulfur dioxide from exhausts, are unimaginable without stainless steel. Jindal Stainless is one of the two stainless steel suppliers in the world selected to supply 1,100 tonne of stainless steel to the prestigious International Thermonuclear Experimental Reactor (ITER) Cryostat Project in France.

Our vision for Jindal Stainless is to be at the helm of sustainable growth, and efficiently develop and deliver state-of-the-art products. Innovative ideas and technology assimilation will pave our way for creating value for our customers and enable future growth for the nation.

*Abhyuday Jindal, Managing Director,
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