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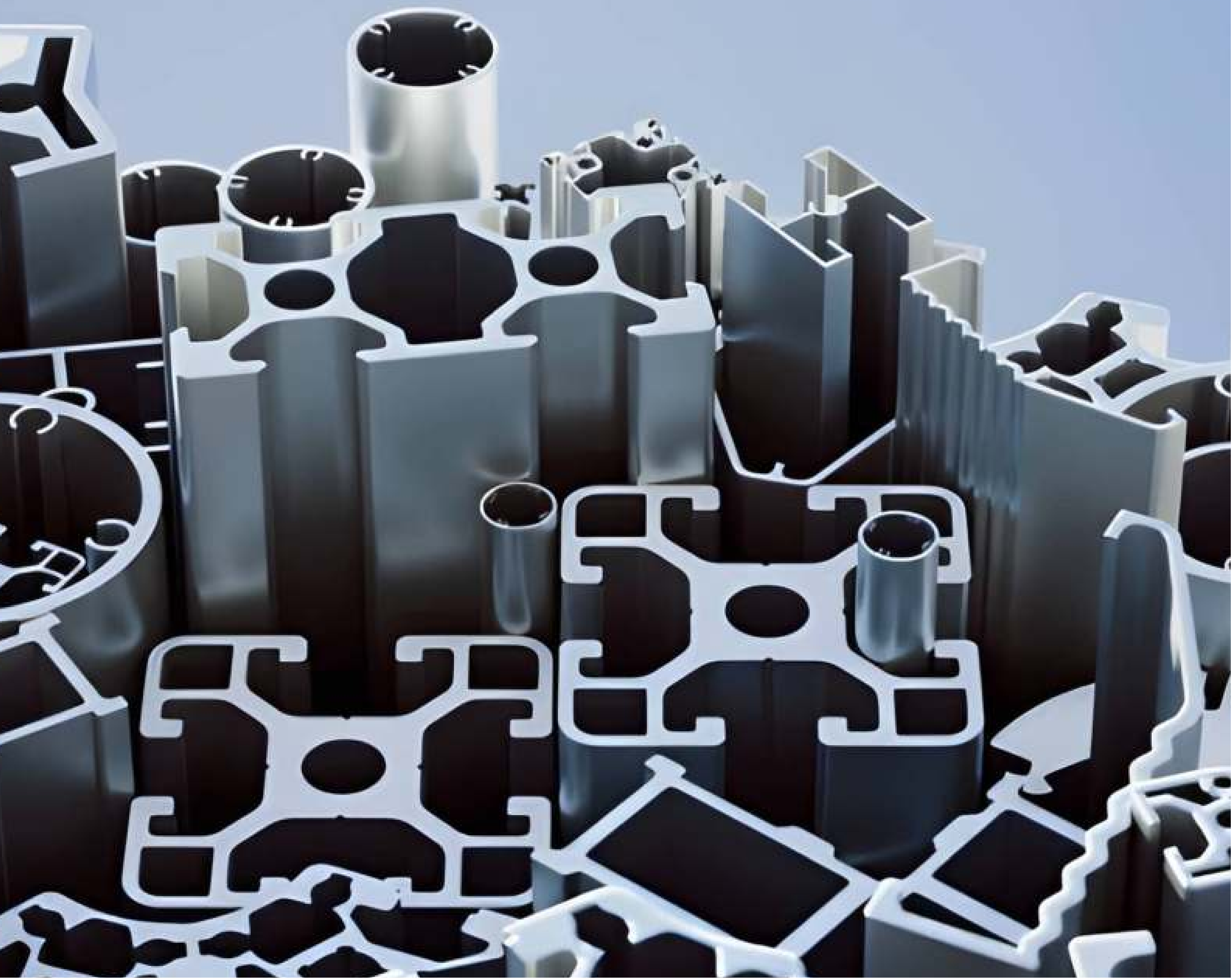
"Century Extrusions is strategically investing in Technology and capability development to serve emerging sectors"

Vikram Jhunjhunwala
Managing Director
Century Aluminium Mfg Co Ltd,
Century Extrusions Ltd

- Status of Aluminium Extrusion Industry and Future Prospects
- Lightweight Aluminium Demand to increase by 50% by 2030
- Bühler Ecoline DS: Proven Performance for Today's Die-Casting Challenges



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D.A. Chandekar
Editor

As India continues to focus on infrastructure development, the demand for metals, particularly aluminium extrusions, is expected to surge. The construction, transport, and engineering sectors are the primary drivers of this growth, with aluminium extrusions finding increasing applications in these industries. From building facades to automotive components, and from electrical systems to furniture, the uses of aluminium extrusions are varied and expanding.

India's economic growth is intricately linked with the development of its infrastructure, and aluminium extrusions play a vital role in this process. The country's aluminium industry has made significant strides in recent years, with production capacities increasing to meet the growing demand. However, to sustain this growth momentum, it is essential to explore new markets, technologies, and collaborations.

The Middle East region, considered the world's aluminium hub, presents a significant opportunity for India to enhance its presence in the global aluminium extrusion market. The region is home to several extrusion plants, supported by a robust user industry. The synergies between India and the Middle East in the aluminium extrusion sector are evident, and there is a strong case for closer cooperation between the two regional economies.

India and the Middle East can benefit from a mutually beneficial partnership in aluminium extrusion. India can leverage the Middle East's expertise in aluminium production and export to tap into the global market, while the Middle East can benefit from India's growing demand for aluminium extrusions. Collaboration in areas such as technology transfer, joint ventures, and trade agreements can further boost the growth of the aluminium extrusion industry in both regions.

The Indian government's focus on initiatives such as "Make in India" and "Atmanirbhar Bharat" is expected to give a fillip to the domestic aluminium industry. The aluminium extrusion sector, in particular, is poised to benefit from these initiatives, with opportunities for investment, innovation, and job creation.

As the world looks to aluminium as a sustainable and versatile metal, the Indian aluminium extrusion industry is well-positioned to capitalize on this trend. With its inherent advantages, including abundant raw materials, low-cost labour, and a growing domestic market, India can emerge as a major player in the global aluminium extrusion market.

The future of the aluminium extrusion industry in India looks bright, driven by the country's infrastructure growth and the increasing demand for sustainable and lightweight materials. Closer cooperation with the Middle East, a global aluminium hub, can further accelerate this growth, creating new opportunities for businesses, industries, and economies.

By harnessing the potential of aluminium extrusions, India can take a significant step towards achieving its economic goals, while contributing to a more sustainable and developed world.

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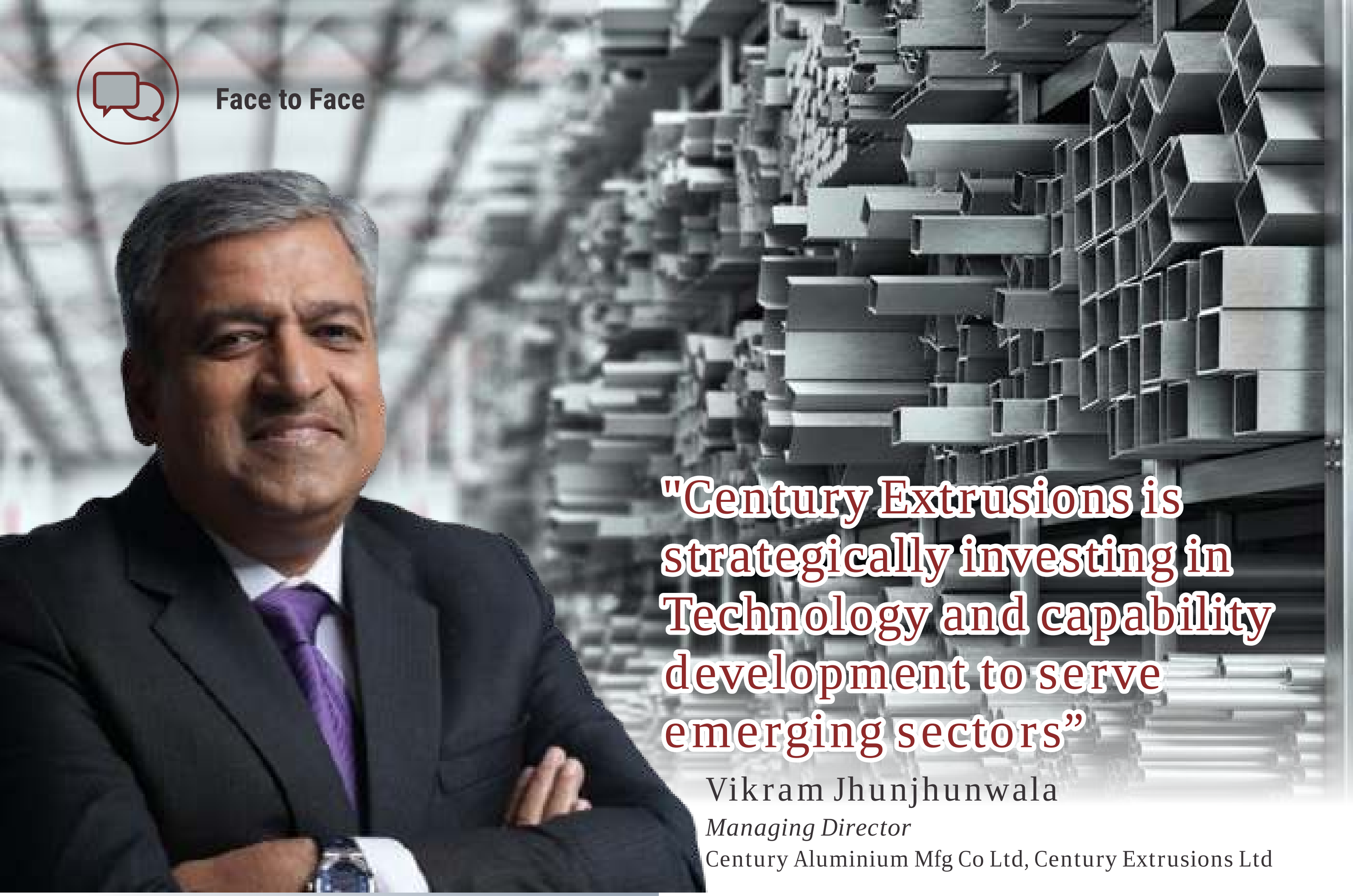


"Century Extrusions is strategically investing in Technology and capability development to serve emerging sectors"

Vikram Jhunjhunwala
Managing Director
Century Aluminium Mfg Co Ltd, Century Extrusions Ltd

Mr. Vikram Jhunjhunwala is a Commerce Graduate from St. Xaviers' College, Kolkata, India.

Aluminium has been the family business of Mr. Jhunjhunwala, his father, Late Mr M P Jhunjhunwala having entered the business in 1964.

Mr. Jhunjhunwala's family has been the pioneer in Aluminium Recycling Industry in India with their first unit having commenced production in 1974 in the name of Century Aluminium Mfg. Company Ltd. from its factory, at Kolkata, India. Today, the Company is one of the oldest Aluminium Recyclers in India with its four facilities located at Kolkata, Faridabad, Hodal (Near Delhi) and Manesar in India.

The group's other business is of Aluminium Extrusions manufacturing in a company named Century Extrusions Ltd. Century Extrusions Ltd. manufactures and supplies extrusions in Soft, Medium & High Strength Alloys and presently, caters to over 500 customers in India for various applications. As a leading expert in the field of downstream aluminium, Mr. Jhunjhunwala is a core member of the BIS commitees tasked with standardizing the various aluminium products currently available in India.

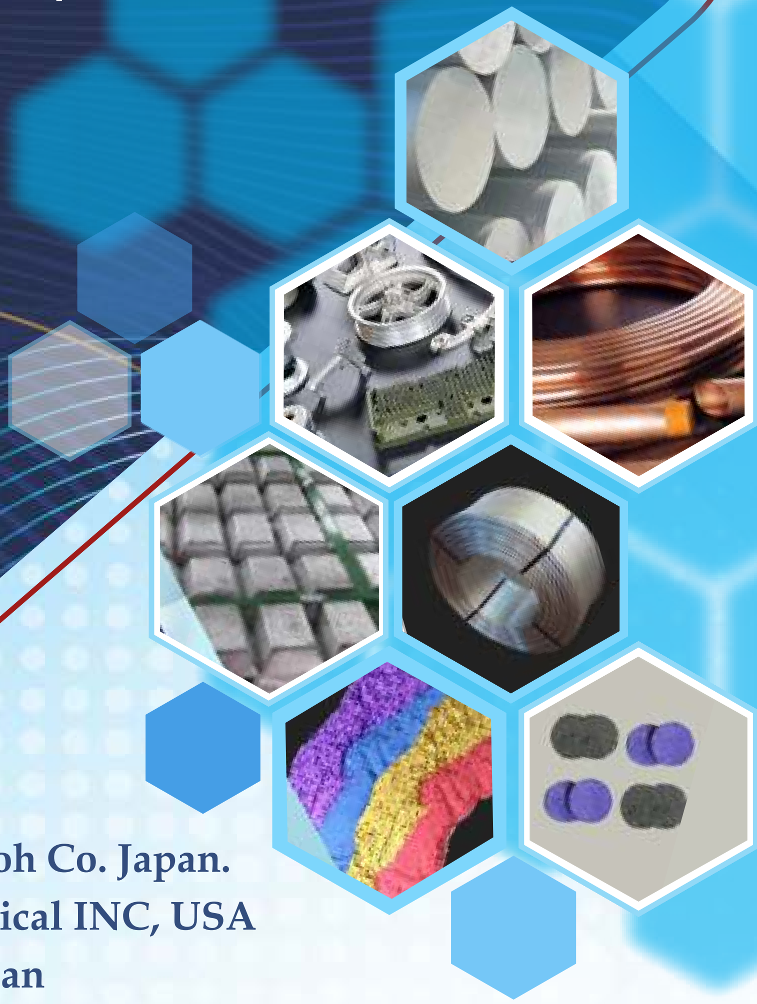
Century Extrusion has been in the non-ferrous metals space for decades- how do you see your company's role in shaping India's extrusion and metal processing sector?

CENTURY EXTRUSIONS LTD is into Extrusion business from last 4 decades. Our organisation's advanced R&D capabilities allow us to work on products which are on the cutting edge of technology.

Our technical prowess enables us to indigenously develop sophisticated products, reducing India's dependence on imports from developed nations while successfully meeting international quality standards. India's aluminum sector is experiencing robust growth, driven by the economy's strong 6-6.5% GDP performance. What were once limited applications for aluminum extrusions have expanded significantly, as industries increasingly recognize the material's advantages- lightweight properties, aesthetic appeal, and ready availability.

“Atmanirbhar Bharat” has put India into the forefront of manufacturing extrusions for new applications for India and for other countries around the world. We position ourselves at the forefront of India's extrusion industry by manufacturing harder alloys and advanced aluminum extrusions that replace imports. Our primary markets - Automotive, Defence, Engineering, Aerospace, Railways, and Infrastructure - are driving India's growth, and we are proud to support this transformation by supplying Indian and international manufacturers with world-class products.

Could you highlight your key markets (domestic vs. export) and how commodity price fluctuations impact your business strategy?



Domestically, we serve critical sectors including Power, Electrical, Engineering, Aerospace, Railways, Defence, and Infrastructure. Our strong home market foundation, combined with India's robust growth trajectory, is generating fresh opportunities as manufacturers embrace the 'Make in India' and vision. We are now leveraging this sectoral expertise to penetrate international markets. While commodity fluctuations significantly impact the industry, our robust procurement systems and diversified raw material sourcing help us manage these challenges effectively, minimizing disruption to our operations and customers.

Many industries are now focusing on being eco friendly. What steps is Century Extrusion taking – like recycling scrap metal or using greener methods – to reduce environmental impact?

Reducing carbon emissions is both an environmental necessity and a business priority. The aluminum extrusion industry consumes substantial electricity, making energy efficiency critical. We are investing in advanced technologies to lower power consumption and transitioning to green energy sources. Our roadmap includes a major green initiative over the next 2-3 years, incorporating post-extrusion scrap utilization and renewable energy infrastructure. Additionally, we are exploring scrap recycling capabilities that complement our quality commitments.

In your view, what are the biggest risks and opportunities for Indian companies in the global non-ferrous commodity markets?

India has emerged as a significant global manufacturing player over the past five years, driven by strong economic growth. However, we face considerable external risks-geopolitical tensions, US tariffs, and regulations like CBAM create market disruptions that impact customer demand, costs, and supply chains. These challenges, however, also

> *While FTAs carry dumping risks in certain product categories, they also open developed markets for Indian exports, creating net positive opportunities for competitive manufacturers.*

present opportunities. As traditional markets face barriers, many countries are viewing India as an alternative manufacturing hub, opening new export avenues for Indian manufacturers.

More critical than these external challenges is an internal risk: the erosion of quality standards. Cost-cutting through substandard practices undermines India's credibility as a world-class manufacturing destination. Maintaining rigorous quality standards aligned with global benchmarks is essential.

Technology-driven innovation represents our greatest opportunity enabling us to deliver value-added products that command premium positioning in international markets. At Century Extrusions, we are committed to this dual imperative upholding uncompromising quality standards while continuously investing in technology and innovation to serve both domestic and international markets with world-class aluminum extrusion solutions.

How are government policies (like import duties, scrap recycling regulations, or FTA agreements) influencing the non-ferrous metals trade in India?

Government policies present both opportunities and challenges for India's non-ferrous metal sector.

Our primary concern is the illogical parity between duties on aluminum raw materials and finished products. Currently, similar duty rates on both undermine 'Make in India' and 'Atmanirbhar Bharat' initiatives by allowing FTA countries to supply finished aluminum extrusions at competitive prices, disadvantaging Indian manufacturers. We strongly urge the government to implement differential duties lower rates for raw materials and significantly higher rates for finished products to enable domestic manufacturing competitiveness.

The Government of India and BIS have taken commendable steps in regulating scrap quality standards, ensuring manufacturers receive appropriate-grade material. However, regulations must focus on quality adherence rather than becoming non-tariff barriers that restrict legitimate scrap imports needed by the extrusion manufacturing sector.

While FTAs carry dumping risks in certain product categories, they also open developed markets for Indian exports, creating net positive opportunities for competitive manufacturers.

The GST framework has modernized India's taxation system, though certain operational inefficiencies remain that need addressing for smoother business operations.

With new industries like electric vehicles and renewable energy growing fast, how will extrusion technology change to supply the kind of metal products they need?

Electric vehicles and renewable energy represent transformative growth sectors for the aluminum extrusion industry. Both sectors have substantial aluminum extrusion requirements that Indian manufacturers are well-positioned to fulfill. India's renewable energy sector is expanding rapidly with government support, having achieved its climate commitments ahead of schedule. These high-growth sectors are driving significant capacity expansion and greenfield projects across the country. However, success demands precision engineered aluminum extrusions with stringent quality specifications requirements that can only be met by manufacturers who invest in advanced technology and continuous upgrades. Century Extrusions is strategically investing in technology and capability development to serve these emerging sectors with the precision and quality they demand.

Status of Aluminium Extrusion Industry and Future Prospects

Dhiraj K. Chauhan
Director
METCON
Metallurgical Consultants

AMONG THE top extrusion industries in India are Maan Aluminium, Hindalco, Superfine group, Global Aluminium, Jindal Aluminium, Century extrusions, Galco, Eagle extrusions, and Salco.

India's current aluminum extrusion capacity is around 2 million tons. Key drivers include the automotive (especially EVs), construction, and renewable energy sectors. The industry is expanding, with major players such as Jindal and Hindalco, and is experiencing growth through technological advancements and the establishment of new facilities in regions like South India.

CURRENT PRODUCTION AND CAPACITY:

Production: About 1.08 million tons in 2024.

Installed capacity: 2 million tons with a projected expansion to 3.5 million tons.

Market size: The aluminum extrusion market was valued at $3.51 billion in 2024.

KEY SECTORS AND DRIVERS:

Automotive: Significant demand, especially for electric vehicles (EVs), due to aluminum's lightweight properties and strength-to-weight ratio.

Construction: A major consumer, with growth fueled by projects like the Smart Cities Mission and affordable housing schemes.

Renewable energy: Increasing use in solar power projects.

Other sectors: Transportation, electronics, and consumer durables also contribute to demand.

INDUSTRY TRENDS AND DEVELOPMENTS:

Capacity expansion: Major players like Hindalco and Jindal are expanding their capacities.

Technological advancements: Adoption of automation, 3D modeling, and Industry 4.0 principles to improve precision, efficiency, and design capabilities.

New facilities: New extrusion and anodizing facilities are being established in regions like South India, such as a new 36,000 MT/year facility by Premier Energies in Telangana, expected to be operational in 2027.

Focus on sustainability: There is an increasing focus on green extrusion practices and sustainable methods within the industry.

The Indian aluminum extrusion industry is a growing sector driven by demand from the construction, automotive, and electrical industries. Key players like Jindal Aluminium, Hindalco, and GALCO are prominent manufacturers, and the industry is focusing on technological advancements, sustainability, and export markets.

The future of India's aluminum extrusion industry is promising, driven by strong demand from sectors like

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construction and automotive, alongside a national push for sustainability. It is supported by government initiatives and an increasing focus on high-strength, lightweight materials. However, challenges remain, including raw material price volatility, high energy costs, and competition from cheaper imports. The future of aluminum extrusion in India is strong, driven by growth in construction, renewable energy, and automotive sectors, with an expected CAGR of 8.3% to 10.3% between 2020 and 2030.

GROWTH DRIVERS:

1) Construction: Rapid urbanization and infrastructure development are increasing demand for aluminum extrusions, which are used in a wide range of building applications due to their aesthetics, corrosion resistance, and lightweight properties.

2) Automotive: The rise in electric vehicles (EVs) and the shift towards lightweight materials to improve fuel efficiency are boosting demand for aluminum parts in cars.

3) Consumer goods: An anticipated surge in consumer goods manufacturing is expected to drive demand for extruded aluminum in appliances, furniture, and electronics.

4) Sustainability: Growing emphasis on eco-friendly materials and products is benefiting aluminum, which is recyclable and supports green building standards.

5) Government support: Policies promoting sustainable manufacturing and the "Make in India" initiative are encouraging domestic production and investment.

6) Demand for lightweight materials: Industries are increasingly using aluminum extrusions for their high strength-to-weight ratio, durability, and corrosion resistance.

TECHNOLOGICAL ADOPTION:

The industry is investing in advanced technologies to improve quality and meet the growing demand for customized and high-performance profiles.

Sustainability:

There is a growing focus on "green extrusion" practices and using aluminum as an environmentally friendly option.

CHALLENGES:

Raw material prices:

The industry faces volatility in raw material prices, which can impact profitability.

Energy costs:

High energy costs pose a significant operational challenge for the sector. Competition: The industry faces pressure from low-cost imports, particularly from ASEAN countries, due to Free Trade Agreement (FTA) concessions.

Skilled labor and technology:

There are concerns about shortages of skilled labor and the need to upgrade to more advanced extrusion technologies.

Environmental regulations:

Increasing pressure to comply with stringent environmental regulations regarding emissions and waste disposal requires significant investment in cleaner technologies, especially for smaller manufacturers.

INDUSTRY OUTLOOK AND TRENDS:

Market growth:

The Indian aluminum extrusion market is projected to grow substantially, with forecasts indicating a significant increase in revenue by 2031.

Digitalization:

The future will likely see increased use of automation, digital design tools like CAD/CAM, and AI-based process optimization.

Sustainability focus:

There will be a greater focus on low-carbon generation, recycled content, and circular economy principles.

TECHNOLOGICAL INNOVATION: INNOVATIONS SUCH AS DIGITAL TWINS WILL ENABLE

Market overview:

- Market size:

The market reached $3.51 billion in 2024 and is expected to grow to $4.61 billion by 2030, with an estimated compound annual growth rate (CAGR) of 4.5%.

- Regional growth:

The southern region is emerging as a significant growth corridor, driven by strong industrial clusters and robust infrastructure development.

• Capacity and operations:

The industry has a large installed capacity, with over 225 member plants of the Aluminium Extrusion Manufacturers Association of India (ALEMAI) representing a combined annual capacity of 2.1 million tonnes, though the actual operating rate is lower. real-time process optimization, reduce energy consumption, and improve yield.

KEY PLAYERS:

Jindal Aluminium Limited

Widely considered the largest manufacturer, with a significant market share and a long history dating back to 1968.

Hindalco Industries

A major player, part of the Aditya Birla Group, with extensive extrusion operations and a presence in various sectors like aerospace and transport.

GAL Aluminium Extrusion Pvt. Ltd. (GALCO)

A prominent company in Maharashtra known for its focus on quality and in-house foundry with Hot Top casting technology.

The future of India's Aluminium extrusion industry is promising, driven by strong demand from sectors like construction and automotive, alongside a government push for sustainability and a shift toward lightweight materials. While the market is projected for significant growth, challenges such as raw material price volatility, high energy costs, and competition from imports require strategic solutions like technology adoption, government support, and promoting 'Make in India' initiatives.

GROWTH DRIVERS

• Infrastructure and construction: Rapid urbanization and infrastructure development are increasing and for durable, lightweight, and aesthetically pleasing aluminium extrusions for building and construction.

• Automotive and transportation: The shift towards lighter and more fuel-efficient vehicles is boosting demand for aluminium components.

• Sustainability: Aluminium's lightweight and high-strength properties, combined with its recyclability, align with a growing global focus on sustainability and energy efficiency.

• Government initiatives:

Policies supporting energy efficiency, emissions reduction, and the 'Make in India' campaign are expected to fuel growth further.

• Key trends:

The future of aluminum extrusion in India is bright, driven by growth in construction, renewable energy, and automotive sectors, with an expected CAGR of 8.3% to 10.3% between 2020-2030.

• Technological advancement:

The industry will see a greater adoption of automation, digital design tools (CAD/CAM), and concepts like digital twins to improve efficiency, precision, and reduce energy usage.

• Focus on quality:

Indian manufacturers are increasingly investing in R&D and adhering to global quality standards, making them competitive partners for high-stakes industries like aerospace and defense.

• Market expansion:

The southern region is identified as a major growth corridor, with new industrial clusters emerging.

CHALLENGES AND MITIGATING FACTORS

• Import competition:

Duty-free imports from certain countries are affecting domestic manufacturers, prompting a call for government safeguards and anti-dumping measures.

• Raw material and energy costs:

Volatility in raw material prices and high energy costs continue to be a concern for the industry.

• Skilled labor:

A shortage of skilled labor and the need for advanced training remain challenges.

• Regulatory environment:

Stringent environmental regulations, while supporting sustainability, require the industry to adapt through green extrusion practices and other sustainable processes.

PATH FORWARD:

Events like ALUMEX India are crucial for facilitating business matchmaking and strategic partnerships to drive investment and innovation. Continued government support for the sector, particularly for MSMEs, is essential for addressing challenges and fostering growth. Increasing quality standards will help India compete in the global market and boost exports. Companies include Banco Aluminium, NALCO, and Vedanta Aluminium Limited.


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Lightweight Aluminium Demand to increase by 50% by 2030

Aluminium is one of the most versatile materials in modern industry. It is strong, lightweight, corrosion-resistant, and endlessly recyclable. From aerospace and automotive components to consumer electronics, construction products, and medical devices, aluminum is indispensable. But as global demand rises projected to grow by 50% by 2030 the pressure to recycle it more efficiently and sustainably is increasing.

What makes aluminum exceptional is not just its utility, but its infinite recyclability. Unlike many materials, aluminum can be reprocessed indefinitely without losing its inherent properties — provided recycling is done correctly. Already, 75% of all aluminum ever produced remains in use. Europe boasts a recycling rate of over 90%, yet further improvements could dramatically reduce CO_2 emissions. Simply put, improving aluminum recycling is essential for achieving climate targets and strengthening industrial resilience.

Technological Trends in Aluminum Recycling

Technological progress in aluminum recycling is now driven by innovations that improve sorting precision, material purity, and melting efficiency. These advancements are crucial for industries such as automotive, packaging, and construction, which increasingly require high-purity, low-carbon, recycled aluminum.

At the same time, the aluminum alloys market is expanding due to demand from electric vehicles (EVs), construction, renewable energy, and lightweight engineering applications. Key challenges include fluctuating raw material prices, high energy costs, supply-chain disruptions, and competition from alternative materials. Technologies such as additive manufacturing and advanced recycling processes are emerging to help the industry overcome these constraints.

The auminium alloys market sees opportunities in the growing demand from sectors like electric vehicles (EVs), construction, and renewable energy, driven by the need for lightweight, durable materials. Challenges include raw material price volatility, high energy costs for production, supply chain disruptions, and competition from alternative materials. Innovations such as additive manufacturing and improved recycling technologies offer pathways to overcome these challenges.

DRIVERS OF INNOVATION

• Sustainability & ESG mandates:

The push for net-zero emissions and circular economy models is a primary driver. Recycling saves up to 95% of the energy and significantly reduces the carbon footprint compared to producing primary aluminum.

• Rising demand for "green" aluminum:

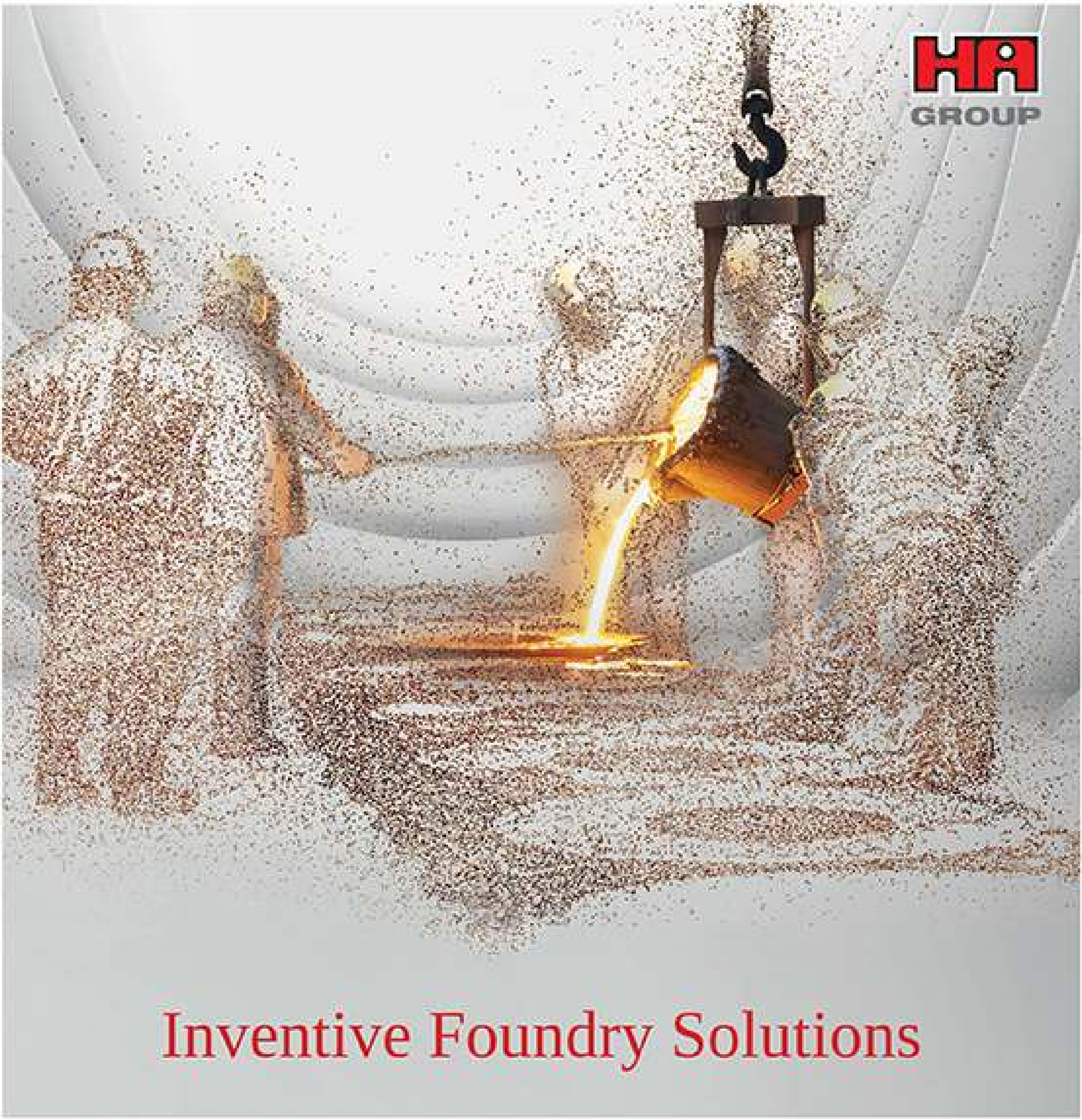
Consumers and manufacturers are increasingly prioritizing recycled content, leading to a surge in demand for low-carbon aluminum and creating a need for higher-purity feedstock.

• Scrap supply crunch:

While demand for recycled aluminum is growing rapidly, the supply of high-purity scrap is tightening. This intensifies competition and accelerates investment in technologies that can process lower-grade, more complex scrap streams.

What are the Challenges for the Aluminium Alloy making

Aluminium scrap is far from uniform. It consists of a wide range of alloy types, each engineered with



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specific chemical compositions, mechanical properties, and end-use requirements. A beverage can is fundamentally different from a cast engine block or an architectural extrusion and unless these alloys are accurately identified and separated, the quality and value of the recycled material decline.

This challenge becomes even more critical for high-performance applications such as aircraft parts, EV battery trays, and advanced structural components. These sectors demand precise, consistent alloy chemistries. Recycled aluminium need to meet the industrial specifications. As a result, it may be down-cycled into lower-value products

The primary challenges in aluminum alloy making stem from the material's unique physical and chemical properties, especially during processing steps like casting and welding, and the increasing reliance on complex recycled feedstocks.

METALLURGICAL AND PROCESSING CHALLENGES

- Oxidation:

Aluminium rapidly forms a tough, high-melting-point oxide layer (around 2072°C) on its surface, which is much higher than the melting point of the metal itself (660°C). This layer must be removed before welding or casting to ensure proper fusion; otherwise, it can lead to defects and weak spots in the final product.

- Hydrogen Porosity:

Molten aluminium readily absorbs hydrogen gas, which then becomes less soluble as the metal solidifies. The trapped gas forms tiny voids or bubbles (porosity) within the casting, compromising its structural integrity and strength. Proper degassing techniques, such as rotary degassing units, are essential to mitigate this issue.

- High Thermal Conductivity:

Aluminium's high thermal conductivity means heat dissipates quickly, making it challenging to maintain a consistent temperature during processes like welding or casting. This can lead to issues such as incomplete fusion, warping, distortion, or hot cracking (solidification cracking) as the material cools unevenly under stress.

- Shrinkage and Hot Tearing:

Aluminium shrinks significantly as it cools and solidifies. If the mold design does not allow for proper feeding of molten metal to compensate for this volume reduction, shrinkage cavities or hot tears can form, particularly in areas with sudden changes in thickness or constrained cooling.

- Alloying Element Segregation:

During solidification, alloying elements and impurities can become unevenly distributed, forming intermetallic compounds or secondary phases (e.g., iron-rich or silicon-rich particles) within the material. These phases can be detrimental, acting as stress concentrators that reduce ductility, fatigue resistance, and corrosion resistance.

CHALLENGES WITH RECYCLED MATERIALS

- Impurity Control:

Relying on mixed-alloy scrap for recycled aluminium introduces various impurities (iron, copper, silicon) that are difficult or impossible to remove economically using conventional methods. This often leads to downcycling the material into lower-value products or makes it unsuitable for high-specification applications like aerospace components.

- Inconsistent Composition:

The inherent variability in the composition of post-consumer scrap makes it difficult to maintain the tight compositional controls required for specific high-performance alloys.

- Anodizing Difficulties:

The presence of higher levels of alloying elements like silicon and iron in cast and recycled alloys makes them significantly more challenging to anodize effectively, affecting the quality, uniformity, and corrosion resistance of the surface finish.

ECONOMIC AND ENVIRONMENTAL HURDLES

- High Energy Costs:

The initial production of primary aluminium from bauxite ore is extremely energy intensive. While recycling saves substantial energy, the smelting and refining processes still require significant power, which can impact production costs, especially in regions with high energy prices.

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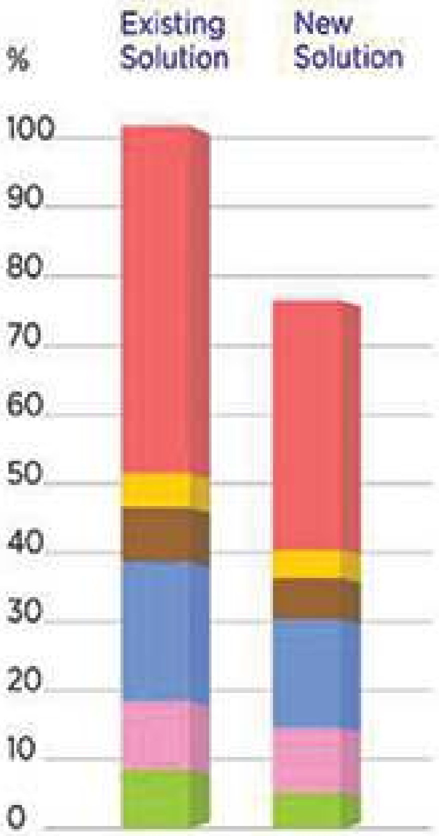

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- Environmental Regulations:

The industry faces pressure to reduce its carbon footprint and manage waste products (like "red mud" from primary production or dross from recycling) in a sustainable manner. Meeting these strict environmental standards often requires significant investment in new, cleaner technologies and processes.

EFFICIENT MELTING AND REFINING

Innovations focus on maximizing yield, reducing energy use, and improving the quality of the molten metal.

- High Shear Melt Conditioning (HSMC):

This degassing technology efficiently removes impurities like hydrogen and oxides from molten aluminium before casting, improving the integrity and properties of the final product.

- Rotary Flux Injection (RFI):

RFI is increasingly used for fluxing, offering an efficient and environmentally friendly solid-flux method for removing impurities compared to traditional lance fluxing.

- Electromagnetic Stirrers:

Melting devices now use electromagnetic stirrers to improve mixing, spread heat generated by exothermic reactions, and reduce oxygen content in the molten metal, leading to higher efficiency.

- Furnace Advancements:

Improved furnace designs, such as high-efficiency rotary furnaces, and alternative heating methods like concentrated solar radiation, are being developed to reduce reliance on fossil fuels and lower the carbon footprint of the remelting process.

MATERIAL UPCYCLING AND CIRCULARITY

The industry is moving beyond simply recycling toward upcycling and closed-loop systems, retaining more value in recycled aluminium.

SHAPE (Shear Assisted Processing and Extrusion):

Developed by the U.S. Department of Energy, this process transforms 100% post-consumer aluminium scrap into high-strength extruded products, reducing energy consumption significantly compared to traditional production.

- Closed-loop recycling:

Major companies like Novelis and Toyota are partnering to create closed-loop systems, recycling scrap from specific manufacturing processes back into the supply chain for the same applications, such as automotive or beverage cans.

- Upgrading lower-quality scrap:

Technologies like deep learning are being used to "upcycle" contaminated scrap streams like "Twitch" into higher-purity material, enabling the use of more post-consumer scrap in demanding applications.

EFFORTS ARE UNDERWAY TO ADDRESS THESE ISSUES THROUGH:

- Advanced Technologies:

Innovations like AI-driven sorting, precise alloy recognition, and new melt analysis techniques are being developed to improve purity.

- Alloy Design:

Research is focused on developing "recycle-friendly" alloys with broader specification limits that are more tolerant of impurities without significant performance loss, to maximize scrap compatibility and use.

- Supply Chain Collaboration:

Establishing closed-loop supply chains where manufacturers take back their own production scrap ensures a consistent, high-purity input for specific alloys.

ADVANCED AND EMERGING TECHNOLOGIES

To meet the stringent purity requirements for high-value applications (like in the automotive and aerospace industries), advanced sensor-based sorting technologies are increasingly used:

- X-ray Transmission (XRT):

Differentiates materials based on their atomic density to effectively separate aluminium from heavy metals.

- Laser-Induced Breakdown Spectroscopy (LIBS):

A highly precise technology that uses a laser to analyse the elemental composition of an object in real-time, allowing for the accurate sorting of different aluminium alloys (e.g., 5xxx and 6xxx series).

Artificial Intelligence (AI) and Deep Learning:

AI-powered systems are integrated with optical sorters (high-resolution cameras) and other sensors to interpret visual patterns and material characteristics (texture, shape, reflectivity). This enhances the sorting process, especially for complex mixed scrap, by detecting overlapping objects and optimizing material flow.

- ShAPE (Shear Assisted Processing and Extrusion):

A novel process developed by the U.S. Department of Energy's Pacific Northwest National Laboratory that uses intense shear forces to transform post-consumer scrap directly into high-strength extruded products, potentially using up to 90% less energy.

These innovations enable higher purity rates and help achieve true material circularity, ensuring that more recycled aluminium can be used in high-specification products and reducing dependence on primary aluminium production.

Whereas the opportunities in aluminium alloy making include supplying to major industries like automotive, aerospace, and construction due to lightweight and strength properties, which are driving demand for better fuel efficiency and performance. Other opportunities lie in specialized products like electronic components, solar panel structures, and furniture, as well as in the growing market for sustainable practices, such as using recycled aluminium and investing in greener production methods. Expanding into new geographical markets and investing in innovation for new alloys and techniques also present significant potential for growth.

HIGH-GROWTH SECTORS

- Automotive:

Manufacturing lightweight body panels, engine parts, and frames to improve fuel efficiency and meet stricter emissions standards.

- Aerospace:

Supplying alloys for aircraft frames, wings, and engine components that benefit from a high strength-to-weight ratio.

- Construction:

Producing architectural profiles for modern buildings, bridges, and infrastructure, where corrosion resistance and formability are key advantages.

SPECIALIZED AND NICHE MARKETS

- Electronics:

Creating heat sinks, casings, and conductive components for devices where thermal conductivity is crucial for heat dissipation.

- Marine:

Manufacturing corrosion- resistant and lightweight boats, ships, and other offshore structures.

- Consumer goods:

Producing durable items like cookware, furniture, and fasteners for both indoor and outdoor use.

- Energy:

Manufacturing components like cables, wires, and structural elements for power lines and solar panel mounting systems.

STRATEGIC AND SUSTAINABLE GROWTH AREAS

- Sustainability:

Investing in and expanding recycling programs to create a more sustainable supply chain and reduce the industry's carbon footprint.

- Decarbonization:

Developing and using decarbonized aluminium and investing in renewable energy to power production processes.

- Innovation:

Investing in research and development to create new alloys with enhanced properties and developing advanced manufacturing techniques.

- Market expansion:

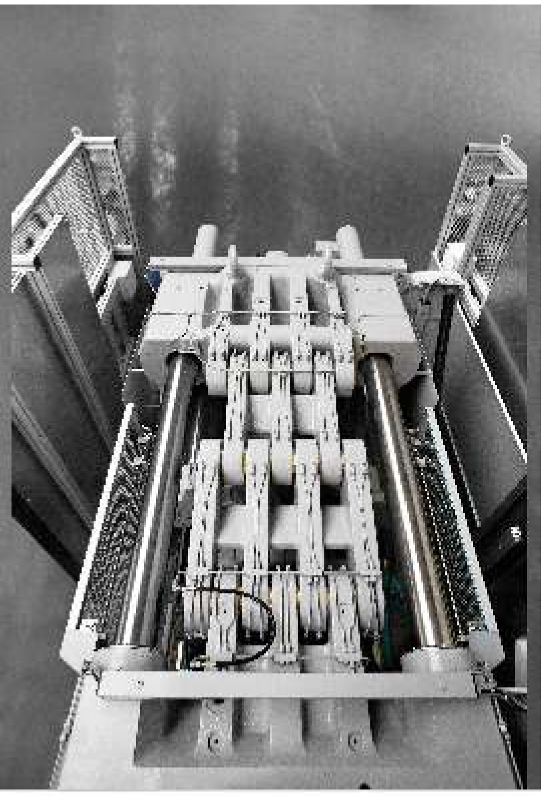
Expanding into developing regions with high growth potential in construction and manufacturing, such as Eastern Europe, Central Asia, and South America.

Bühler Ecoline DS: Proven Performance for Today's Die-Casting Challenges

- Bühler Group

THE DIE-CASTING industry faces increasing challenges every day. Customers and products require ever higher quality standards, while production-cost pressure continues to rise. There is a growing need to track the process data to guarantee consistent high quality of cast parts and ensure data traceability over the entire value chain.

Bühler's Ecoline DS platform stands out as an established and trusted solution that addresses these industry challenges head-on. With its seamless integration capabilities for both peripherals and digital services, the Ecoline DS delivers full transparency of cell productivity. Its versatility allows users to monitor and optimize processes in real time, ensuring consistent quality and traceability across every cycle.



Efficiency Through Advanced Engineering

One of the hallmarks of the Ecoline DS is its capacity to reduce cycle times and minimize scrap, all while maximizing cell availability. Used in over 900 installations worldwide, the Ecoline machine series offers premium Bühler quality, available in a range of sizes with locking forces from 3,400 to 9,000 kilonewtons. Central to its efficiency is the proven Bühler toggle system, engineered for precise die closure and rapid movement, contributing to shorter cycle times and reliable performance.

Powerful and Precise Injection

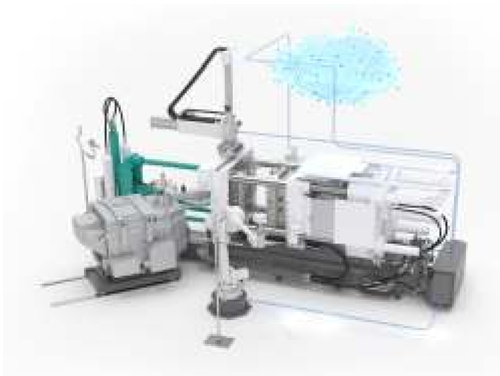
The Ecoline DS features a robust injection unit capable of delivering 210-bar hydraulic pressure. This powerful system ensures strong dynamics, quick filling speeds, and high final pressures, which are critical factors for producing complex, high-quality cast parts. Automated first-phase algorithms further optimize the filling process, enabling efficient production at the touch of a button.

Smart Control and User-Friendly Operation

Designed with the operator in mind, the Ecoline DS boasts a compact control system that focuses on essential die-casting functions. The intuitive multi-touch panel, combined with a graphical user interface, makes operation straightforward and accessible. Fully integrated peripheral equipment, all tuned for seamless interaction, ensures that the entire cell operates smoothly and efficiently.

Digital Services and Data Traceability

A defining feature of the Ecoline DS is its networking capability, which guarantees complete traceability of all production data. This connectivity unlocks a suite of digital services, including real-time dashboards displaying key performance indicators and insights into downtime analysis.



These tools empower users to identify bottlenecks, drive continuous improvement, and maintain an edge in a competitive market.

Reliable, Future-Ready Performance

The Bühler Ecoline DS has proven itself as a dependable option for die-casting manufacturers. Its consistent track record in enhancing yield and supporting uptime speaks to its usefulness in helping manufacturers address evolving customer needs, both now and in the future.

Performance of Base Metals (LME, SMM & MCX- October 2025)

OCTOBER 2025 marked a decisive shift in base-metal sentiment, as markets worldwide responded to a complex mix of improving industrial activity, evolving energy trends, and signs of stabilisation in China's manufacturing sector. Unlike the volatility seen in August–September, October brought a more structured recovery: manufacturing PMI across key regions moved closer to expansion territory, logistics bottlenecks eased, and policy support in China began translating into visible improvements in downstream metal consumption.

Global traders entered October cautiously optimistic. Commodities broadly benefitted from higher infrastructure spending, stronger renewable-energy demand, and revived activity in the automobile and electronics sectors. Meanwhile, supply-side adjustments particularly in copper and zinc tightened fundamental balances and supported firmer prices on Western exchanges.

In India, the festival season and a boost in construction activity contributed to healthy demand for aluminium, copper, and zinc. MCX mirrored these developments, with futures contracts showing moderate gains and increased participation from industrial hedgers.

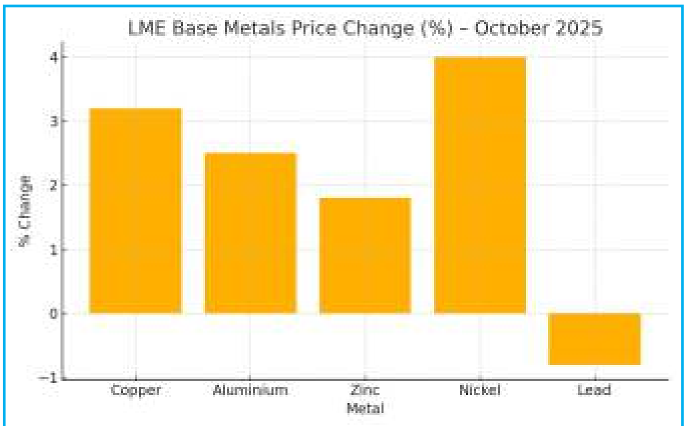
LME (London Metal Exchange) : Price Changes

LME markets reflected a month of gradual strengthening, supported by improving risk appetite, firming Chinese industrial demand, and tighter concentrate supply in select metals.

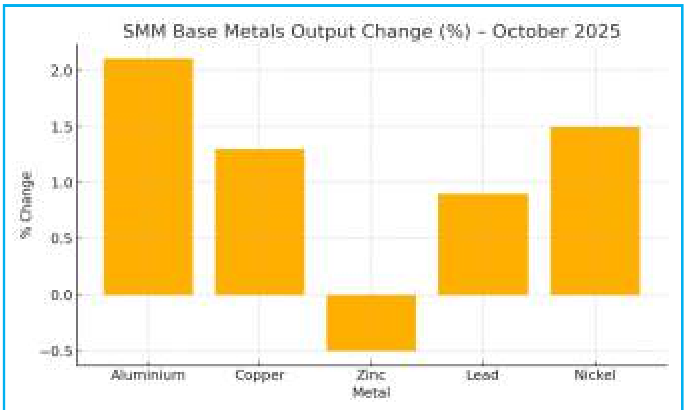
Here is the assumed October performance (Month-on-Month % change):

- Copper: +3.2% - Copper rallied on expectations of stronger EV and renewable-energy demand. Supply tightness in Latin America added to upside momentum.
- Aluminium: +2.5% - Demand from automotive, beverage cans, and solar-energy components improved. Higher energy costs in Europe also raised production costs, mildly lifting prices.
- Zinc: +1.8% - Prices rose due to smelter maintenance shutdowns and a slight deficit in refined metal availability.
- Nickel: +4.0 - Nickel saw the strongest recovery, driven by battery-material demand and supply-side disruptions in Indonesia.
- Lead: –0.8% - Lead declined mildly due to softer demand from the battery-replacement market and adequate inventories at LME warehouses.

Overall, LME sentiment in October



Note: LME price movements reflect global spot and futures trends for September 2025. Data represent average month-on-month percentage changes across official cash prices. Slight variations may occur due to intra-month volatility and delayed contract settlements.



Note: SMM production figures are based on reported monthly smelter output from major Chinese producers. Minor deviations may result from maintenance shutdowns or delayed reporting cycles.

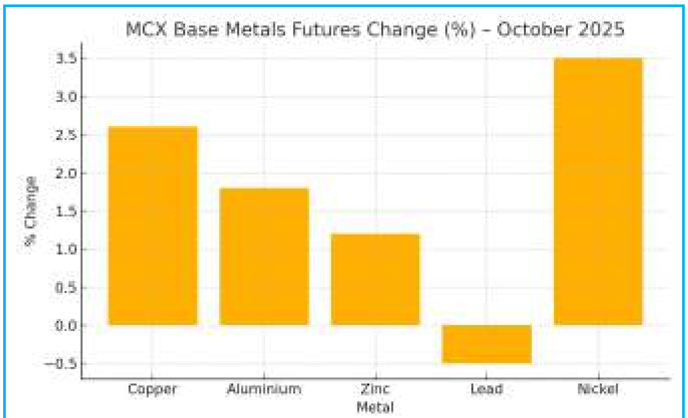
was moderately bullish, setting the tone for downstream Asian and Indian markets.

SMM (Shanghai Metal Markets): China Production & Output Trends

China's metals sector showed clearer signs of stabilisation in October after months of uneven demand. Production data at SMM indicated month-on-month improvements in aluminium and copper, while zinc and lead saw mixed trends.

Here are the assumed October changes in output:

- Aluminium output: +2.1% - Smelters in Yunnan resumed normal operations due to improved hydropower availability, pushing production higher.
- Copper cathode output: +1.3% - Refineries increased utilisation due to improved treatment charges and stronger orders from electrical and grid-equipment suppliers.
- Zinc output: –0.5% - Maintenance shutdowns impacted zinc smelters in Hunan, pulling down total refined zinc production.
- Lead output: +0.9% - Recycled lead smelters operated at higher rates, supported by stable scrap inflows.
- Nickel output: +1.5% - NPI and matte output increased moderately, tracking strong battery precursor demand.



Note: MCX trading activity represents changes in futures volume and open interest for base metals during October 2025. Figures are compiled from public data and indicative exchange summaries. Variations reflect both market sentiment shifts and seasonal demand patterns.

Comparative Snapshot – October 2025

Metal	LME Price Change (%)	SMM Output Change (%)	MCX Futures Change (%)
Aluminium	▲ 3.2%	▲ 1.3%	▲ 2.6%
Copper	▲ 2.5%	▲ 2.1%	▲ 1.8%
Zinc	▲ 1.8%	▼ 0.5%	▲ 1.2%
Lead	▲ 4.0%	▲ 1.5%	▲ 3.5%
Nickel	▼ 0.8%	▲ 0.9%	▼ 0.5%

Note: Arrows indicate month-on-month trend direction.

While the recovery is not uniform, October represented one of the more stable months for China in 2025 and this translated into more predictable global pricing.

- MCX (Multi-Commodity Exchange): India Futures

MCX mirrored the improvement seen in global sentiment, although price action remained more conservative due to INR-USD fluctuations and domestic inventory conditions.

- Copper futures: +2.6% - Supported by festive-season consumption, cable demand, and stronger imported premiums.
- Aluminium futures: +1.8% - Power-sector orders and packaging demand kept aluminium stable, with a gentle upward bias.
- Zinc futures: +1.2% - Construction and galvanizing activity remained healthy; zinc futures tracked tightness in global supply.
- Lead futures: –0.5% - The secondary-lead market remained oversupplied, softening domestic futures.
- Nickel futures: +3.5% - EV-battery demand and stainless-steel sector consumption kept nickel on a strong upward path.

Trading participation on MCX remained resilient, with hedging volumes rising among cable makers, casting units, and mid-sized manufacturers.

Note: MCX trading activity represents changes in futures volume and open interest for base metals during October 2025. Figures are compiled from public data and indicative exchange summaries. Variations reflect both market sentiment shifts and seasonal demand patterns.

Nickel led gains across all three indicators (LME, SMM, MCX), while lead was the only metal to show weakness in both LME prices and MCX futures despite stable Chinese output.

Conclusion: A Steadier Market Entering Q4 2025

October served as a stabilising month for the global base-metals ecosystem. LME markets gained strength on firmer energy demand, gradual recovery in China, and disciplined supply. SMM data reflected improved utilisation rates and better ordering activity. In India, MCX futures showed confidence as downstream demand picked up ahead of festival-driven manufacturing activity.

Looking ahead to November–December 2025, the industry is cautiously optimistic. Key sentiment drivers include:

- China's continued stimulus
- EV & renewable-energy demand
- Normalising supply chains
- Strengthening auto, construction, and infrastructure sectors
- Tightening supply in copper and nickel

The base-metals market is transitioning from volatility toward directional recovery—with sustainability, electrification, and infrastructure investment at its core.

Industry Leaders Push for Next-Gen Alloy Development

INDIA'S NON-FERROUS metals sector is witnessing a shift in leadership focus as several senior executives across aluminium, copper, and zinc industries champion advanced alloy development for strategic applications. Senior leaders from leading metal producers and downstream manufacturers have collectively highlighted the need for R&D-led growth as global customers increasingly demand lightweight, corrosion-resistant, and energy-efficient materials.

Industry makers are advocating deeper collaboration between producers, Tier-1 suppliers, research institutes, and government-funded

technology centers. Their priority areas include next-generation aluminium- magnesium alloys for electric mobility, copper alloys for renewable power systems, high-strength brass for precision engineering, and advanced casting alloys for aerospace and defence.

These leadership voices have also emphasized that India must evolve from capacity-led growth to innovation-led competitiveness. With global supply chains shifting and major economies diversifying sourcing away from China, Indian alloy makers see a rare window of opportunity. The sector's decision-makers now view R&D not as a cost but as a strategic investment for long-term value creation.

As this momentum builds, industry leaders across foundries, primary smelters, and downstream processors are expected to drive new projects, pilot plants, and collaborative programmes in FY26 and beyond. Their unified push signals a defining transition for India's non-ferrous metals ecosystem from volume to value.

New Leadership Across Casting & Foundry Firms Drives Digital Transformation

A WAVE of leadership appointments in India's foundry and castings industry is accelerating digitalisation and automation initiatives. Newly appointed CEOs and functional heads across mid-sized and large foundry clusters are prioritising robotics, predictive maintenance, casting simulation, and AI-enabled quality management.

These leaders are steering organisations toward Industry 4.0 tools to counter long-standing challenges such as labour shortages, inconsistent quality, and rising input costs. Many have engineering and global operations backgrounds, enabling them to blend international best practices with India's high-volume casting environment.

Their strategies also include capacity consolidation, energy-usage optimisation, and investment in environment-friendly melting technologies. Leadership teams are placing renewed emphasis on export market penetration, with an eye on mobility components, hydraulic castings, machinery parts, and industrial valves.

This new generation of decision-makers is driving a transformation where traditional foundry operations evolve into digitally intelligent, sustainable, and globally competitive manufacturing ecosystems.

Rising Global Visibility for Indian Metal Executives

INDIAN METAL industry leaders are gaining increasing visibility on international platforms related to circular economy, green metals, and supply chain resilience. Several executives have been invited to advisory panels, global research forums, and sustainability roundtables, reflecting India's growing strategic importance in global metal value chains.

Executives are particularly participating in dialogues related to low-carbon aluminium, copper for grid modernisation, metal reuse technologies, and advanced foundry systems. Their presence in global panels is enabling international collaboration and knowledge exchange, while also improving India's brand image as a reliable and future-ready metal producer.

This trend reinforces that India is no longer just a volume producer, but a knowledge-driven contributor in global materials technology conversations.

Hindustan Zinc Sets New Benchmark in Mine Safety Excellence at Intra-Zonal Rescue Competition 2025

HINDUSTAN ZINC Limited (HZL), a Vedanta Group company and the world's largest integrated producer of Zinc, successfully hosted the Intra Zonal Mine Rescue Competition (IZMRC) 2025 at its Rampura Agucha Mine (World's largest underground zinc mining operations) in Rajasthan from October 11–13, 2025. The event was organized under the aegis of the Directorate General of Mines Safety (DGMS), Northwestern Zone, bringing together India's best mine rescue teams to test their skills, teamwork, and emergency response capabilities.

The three-day competition featured ten teams, including two all-women rescue teams from the company's Rampura Agucha Mine and Zawar Group of Mines, along with men's teams from Kayad Mine, Hindustan Copper Mines, Rajpura Dariba Mine, Sindesar Khurd Mine, Rampura Agucha, and Zawar Group of Mines — with two teams each representing Zawar Group of mines and Hindustan Copper Mines. The event highlighted the importance of technical precision, physical endurance, and collaboration during working hours, which is a key pillar of HZL's world-class safety culture.

The opening ceremony, held on October 12 at the Rampura Agucha Rescue Room Training (RRRT) Centre, was graced by Shri Vinod Rajak, Director of Mines Safety, Northwestern Zone, DGMS Udaipur, as Chief Guest, along with other and senior DGMS officials including Shri K. Ravinder, Dr. I. Satyanarayan, and Shri Tom Mathews as Guests of Honour.

Speaking about the event, Mr. Arun Misra, CEO & Whole time Director, Hindustan Zinc, said "At Hindustan Zinc, safety is deeply rooted in our culture and it drives everything we do. The Intra Zonal Mine Rescue Competition is a testament to our commitment to preparedness, teamwork, and operational excellence in mining. It is inspiring to witness the courage, discipline, and technical precision demonstrated by every participant, especially the remarkable performance of our all-women rescue teams who continue to redefine possibilities in an industry that has traditionally been male dominated. Such initiatives not only strengthen our safety systems but also instill a sense of pride and purpose across our workforce. We remain dedicated to advancing the highest standards of safety, inclusion, and innovation across all our operations."

Throughout the event, teams participated in live rescue relay competitions, statutory tests, and emergency simulations designed to evaluate their skill, decision-making, and readiness in real-life scenarios. The closing ceremony, held on October 13 at the Executive Club, Zinc Colony, Rampura Agucha, was graced by Shri R.T. Mandekar, Deputy Director General of Mines Safety, North Western Zone DGMS, Udaipur, as Chief Guest, DGMS Udaipur, as Chief Guest, followed by Shri Kishore Kumar S., Chief Operating Officer, Hindustan Zinc, Shri Ram Murari, IBU CEO Rampura Agucha Mine and senior DGMS officials including Shri K. Ravinder, Dr. I. Satyanarayan, and other dignitaries from the mining fraternity.

- Under the aegis of the Director General of Mines Safety (DGMS), Northwestern Zone, Hindustan Zinc hosted the competition at Rampura Agucha Mine in Rajasthan
- Ten teams including two all-women mine rescue teams competed in rigorous underground rescue simulations

A total of 8 categories were awarded in the closing ceremony, with the men's team of Rampura Agucha Mine taking home the overall winners title, followed by Rajpura Dariba Mine as the runner's up and a stellar tie for second runner's up between Hindustan Copper Limited and all-women's team of Rampura Agucha Mine.

The successful conclusion of the Intra Zonal Mine Rescue Competition 2025 underscores Hindustan Zinc's unwavering focus on safety excellence, skill development, and gender inclusion in mining. As a company that places the highest priority on safeguarding its workforce, Hindustan Zinc strengthens its safety culture through rigorous training, advanced technology adoption, and proactive risk management. By hosting platforms that encourage hands-on learning, technical innovation, and cross-team collaboration, the company continues to set global benchmarks for responsible mining practices. Being the only Indian member of the International Council on Mining and Metals (ICMM) and one of the world's most sustainable metals and mining companies, it remains committed to empowering people, protecting the planet, and creating a safer, more resilient future for the mining industry and the communities it serves.

Sustainability Becomes Top Priority for Senior Executives Across Non-Ferrous Sector

IN 2025, sustainability has moved from boardroom discussion to boardroom mandate across India's aluminium, copper, and zinc industries. Senior executives are now directly involved in shaping decarbonisation roadmaps, circular economy models, and responsible resource utilisation frameworks.

Industry makers are prioritising scrap-based production, renewable energy adoption, energy-efficient furnaces, and closed-loop material recovery systems. CXOs leading these shifts highlight that global buyers increasingly prefer suppliers with certified low-carbon footprints.

Executives are also pushing for traceability mechanisms and environmental product declarations (EPDs) — tools that were once limited to Europe but are now gaining momentum in India. These sustainability champions are engaging with policymakers to build stronger recycling infrastructure, improve urban scrap collection, and incentivise green technology upgrades.

Their collective actions are setting new benchmarks for India's non-ferrous industry, positioning it strongly for the next decade of green manufacturing.

Non-Ferrous Innovators Drive Expansion into EV and Energy Sectors

PROMINENT EXECUTIVES across aluminium and copper industries are leading strategic expansions into electric mobility, renewable energy, and power electronics components. Their focus areas include busbars, battery casings, motor housings, structural components, and thermal management solutions.

These leaders believe that the next decade of non-ferrous demand will be shaped by India's energy transition, and they are positioning their organisations as critical suppliers in this transformation.

Vedanta Aluminium Develops, Patents Breakthrough Alloy, Advancing Innovation in Sustainable Metallurgy

VEDANTA ALUMINIUM, India's largest producer of aluminium, has achieved a major milestone with the grant of its first new product development patent for a lead- and tin-free bismuth-aluminium alloy. This innovation addresses the global phaseout of hazardous elements like lead and tin, offering a sustainable, high-machinability solution for critical industrial applications.

This patent marks a breakthrough in sustainable material innovation, combining engineering excellence with environmental responsibility. Developed by Vedanta Aluminium's in-house R&D team, this alloy represents a major step forward in sustainable metallurgy. By replacing hazardous elements such as lead and tin with bismuth, the alloy not only meets global environmental standards but also delivers exceptional machinability and mechanical strength.

The alloy is engineered for components used across automotive, electronics, and textile sectors, where machining operations are central to production. Applications include automotive parts such as ABS manifolds, hydraulic manifolds, valve blocks, transmission sleeves, air conditioning components, steering yokes, drive shafts, and electrical connectors, as well as electronic components like camera and clock parts and mobile phone housings.

Rajiv Kumar, CEO, Vedanta Aluminium, said, “Innovation and sustainability are at the heart of Vedanta Aluminium's R&D efforts, driving us to create solutions that advance our environmental goals while delivering world-class breakthrough products. This patent validates our efforts at pushing the boundaries of material science, while embedding sustainability into every stage of our value chain. The bismuth-aluminium alloy represents the future of responsible manufacturing.”

The inspiration for this innovation stemmed from an increasing customer demand for sustainable, high-performance alternatives to traditional machinable alloys such as AA6262 and AA6020, which contain lead and tin. With these alloys under regulatory scrutiny, industries have been using standard grades like AA6061 and AA6082, which pose limitations such as poor surface finish, reduced tool life, higher cutting load, and longer operation times.

Secondary Aluminium: Powering India's Green Growth, Circular Economy, and Global Competitiveness

INDIA'S ALUMINIUM industry is undergoing a pivotal transformation. With national demand projected to rise from around 5.3 million tonnes today to nearly 8.3 million tonnes by 2030, both primary and secondary producers have crucial roles to play in meeting industrial and environmental goals. The secondary aluminium sector, founded on recycling domestic and imported scrap, now contributes nearly 40% of India's total aluminium supply and has become a cornerstone of sustainable manufacturing, supported by roughly 20 percent domestic and 80 percent imported scrap inputs.

India still does not generate enough end-of-life aluminium scrap to meet rising demand for low-carbon metal. Until the domestic scrap pool matures, aluminium scrap sourced through imports remains indispensable for keeping the nation's 2-million-tonne-plus recycling capacity fully utilised, sustaining competitiveness, and accelerating emission reduction. A predictable scrap-supply regime strengthens not threatens domestic investment by ensuring raw material security, rational pricing, and higher capacity utilisation.

“India's secondary aluminium industry is driving the nation's transition toward circularity, energy efficiency, and global sustainability leadership,” said a spokesperson for the MRAI. “Producing aluminium through recycling uses 95 percent less energy and emits over 90 percent less CO_2 than primary smelting- it's like importing free electricity into the country.”

Recycling generates minimal waste compared with primary production and aligns with NITI Aayog's Circular Economy Roadmap and Make in India 2.0. The industry empowers MSMEs, operates under BIS and radiation-check standards, and provides safe, high-quality raw material for downstream manufacturing.

By converting this scrap into high-value alloys and exporting them, India earns foreign-exchange surplus while advancing Net Zero 2070 targets. With global demand for green aluminium soaring led by the EU's low-carbon markets India is positioned to become a reliable supplier of sustainable metal.

The sector also generates thousands of livelihoods across all skill levels & fosters women's participation in sorting and quality operations, advancing inclusive and dignified employment in industrial clusters.

To sustain this momentum, MRAI urges a progressive and balanced policy framework that reinforces India's recycling-led growth. Reducing import duty from 2.5% to 0% duty on aluminium scrap will ensure steady feedstock availability for recycling plants and uninterrupted production. A reduction of GST from 18% to 5% or 0% preferably will ease liquidity pressure, encourage formalisation, and enhance competitiveness across the value chain. Further, simplifying TDS on GST provisions will support MSMEs and small recyclers enabling them to expand, invest, and create green employment at the grassroots level.

With stable and forward-looking policies, India's secondary aluminium industry will continue to power sustainable growth, create green jobs, and strengthen India's leadership in global circular manufacturing.

Indian Foundry Leaders Prioritise Automation and Workforce Upskilling

INFLUENTIAL LEADERS across India's foundry clusters are pushing for significant skill development initiatives, recognising that advanced technology adoption requires a multi-skilled workforce. Training programmes now focus on 3D printing, casting simulation, furnace efficiency, inspection technologies, and machining automation.

Equally notable is the leadership emphasis on safety, productivity, and structured apprenticeship models. CXOs highlight that workforce quality will be a decisive factor in securing export contracts in coming years.

This leadership shift indicates a maturing foundry ecosystem moving closer to global standards.

Indian Foundries Witness Capacity Surge as Auto & EV Demand Accelerates

INDIA'S FOUNDRY industry is entering a new phase of expansion, driven primarily by strong order books from the automotive, EV, and agricultural machinery sectors. Over the last quarter, Tier-1 and Tier-2 foundries across Tamil Nadu, Gujarat, and Maharashtra have reported utilisation rates rising to 75–85%, compared with 55–65% during early FY2024–25.

Automotive castings continue to dominate the landscape. With domestic vehicle production projected to cross 32 million units by FY2026, demand for high-pressure aluminum die-castings, iron castings, and precision components has risen sharply. EV manufacturers, particularly in the two-wheeler and compact four-wheeler segments, are increasingly sourcing lightweight aluminum castings to support higher thermal performance, reduced weight, and improved efficiency.

Many foundries are responding through capacity additions and process upgrades. Induction furnace modernization, low-pressure die-casting systems, and automated fettling units are becoming mainstream investments. Several mid-sized foundries in the Coimbatore and Rajkot clusters have begun implementing Industry 4.0 tools such as melt-shop dashboards, sand plant automation, and energy monitoring systems to improve consistency and reduce defect rates.

However, challenges persist. The industry continues to face cost pressures due to fluctuating metal prices, skilled labour shortages, and higher financing costs for modernization. Despite these challenges, the outlook remains strong. With OEMs demanding consistent quality, sustainability compliance, and global standards, Indian foundries are increasingly positioning themselves as reliable export-ready suppliers for the international market.

The next 18 months are expected to deliver the strongest growth cycle for the industry since 2017–18, marking a pivotal moment for the domestic casting ecosystem.

Skill Gap Widens: Foundry Industry Calls for Modern Training Programs

WHILE TECHNOLOGY adoption is rising, skill availability is declining. Foundry owners across India have highlighted a growing mismatch between industry needs and workforce capabilities. Skilled workers in pattern making, core shop operations, aluminium die-casting, and digital foundry systems are increasingly difficult to source.

IIF and several regional technical institutes are collaborating to launch modern training programmes focusing on:

- 3D sand printing
- Simulation-driven casting design
- Automated fettling and moulding
- Metallurgy and alloy behaviour
- Energy management in foundries

Apprenticeship models and cluster-level training centres are being proposed to address the long-term skill development challenge. Unless tackled proactively, the skill gap could become a bottleneck for India's ambition to emerge as a global foundry powerhouse.

Aluminium Foundries Expand Capacity as Lightweighting Trend Deepens

LIGHTWEIGHTING IS becoming central to India's manufacturing ecosystem, especially in automotive, EVs, and renewable-energy applications. In response, aluminium foundries across Pune, Hosur, Chennai, and Delhi-NCR are expanding capacity and upgrading equipment.

Over the past year:

1. Large die-casting companies have announced ?800–1,200 crore

investments

2. Tier-2 aluminium foundries are upgrading to high-pressure die-casting (HPDC) machines ranging from 1,000–2,500 tonnes

3. Several firms have begun deploying vacuum die-casting systems to meet stringent porosity control requirements

EV powertrain components, battery housings, inverter casings, and structural parts are experiencing significant demand growth. Renewable-energy applications, such as solar mounting structures and wind power components, are also boosting aluminium casting demand.

Green Foundry Movement Gains Momentum: Cleaner Melting & Energy-Efficient Operations Expand

SUSTAINABILITY IS SHIFTING from an aspiration to a clear mandate for India's foundry industry. In response, several large and mid-scale foundries have launched initiatives centred on cleaner melting practices, renewable energy integration, and waste heat recovery

Electric induction furnaces are steadily replacing cupolas across multiple clusters. Industry estimates suggest that nearly 68% of Indian foundries have now either switched to electric melting or initiated phased transition plans. Recent central and state-level incentives for renewable energy procurement have also accelerated adoption. Rajasthan, Karnataka, and Maharashtra states with strong industrial corridors are seeing foundries sign long-term solar power contracts to reduce electricity costs by 20–40%.

Another major development is the adoption of waste heat recovery (WHR) systems, particularly in large iron foundries where heat loss has historically been significant. WHR units are being deployed to preheat charge materials, improving melt efficiency while reducing overall energy consumption.

On the environmental front, foundries are increasingly adopting advanced dust-collection systems, low-VOC binders, and water recycling technologies. Several facilities in Punjab and Tamil Nadu have achieved near-zero liquid discharge (ZLD), setting new benchmarks for clean foundry operations in India.

The "Green Foundry Movement," supported by the Institute of Indian Foundrymen (IIF), is now one of the strongest sustainability-driven initiatives in the metallurgical sector. With global OEMs demanding ESG compliance, Indian foundries see sustainability not merely as compliance, but as a competitive advantage for future export growth.

Casting Export Outlook Strengthens as North America and EU Demand Stabilises

AFTER NEARLY two years of supply-chain disruptions, Indian foundry exports are beginning to stabilise. Fresh demand from North America, Germany, Poland, and Italy has resulted in improved export order flows for cast iron, ductile iron, and aluminium castings.

Industry data shows that Indian casting exports are expected to grow 8–10% in FY2025–26, supported by:

- Reshoring and de-risking strategies of Western OEMs
- A preference for India over China in several categories
- Increased acceptance of Indian foundries meeting EU sustainability and quality norms
- Sectors driving export momentum include agricultural machinery, wind-energy components, general engineering, and commercial vehicles.

Logistics costs have also moderated after the extreme volatility witnessed in 2023–24. Freight rates on key routes to Europe and the US have stabilised, improving pricing confidence for exporters. However, geopolitical uncertainties particularly in the Middle East shipping routes remain a concern.

Despite risks, India's foundry sector is well-positioned to expand its global footprint.

Automation Wave Accelerates: Foundries Invest in Robotics, ML-Based Quality Systems

AUTOMATION IS no longer a niche investment—it is becoming the backbone of modern Indian foundries. Clusters in Kolhapur, Chennai, and Coimbatore have begun large-scale adoption of robotics, automatic pouring systems, ML-based quality inspection, and integrated ERP–MES systems.

Key investment trends include:

- Robotic fettling and grinding, reducing human exposure to hazardous tasks
- Automated pouring systems to improve casting consistency and yield
- AI/ML-driven defect analysis using real-time camera and thermographic data
- IoT-based sand plant controls for continuous monitoring of moisture and compactability
- Predictive maintenance tools for moulding lines, compressors, and power systems

Many foundries report 15–20% reductions in rejections and melt losses after adopting automated systems. Automated pattern storage, core-making robots, and vacuum-assisted moulding are also gaining popularity in high-precision segments.

India's Non-Ferrous Industry Sees Surge in Demand from Energy Transition and Infrastructure Projects

INDIA'S NON-FERROUS metals sector is experiencing a notable rise in demand in Q2–Q3 FY25–26, supported primarily by accelerating clean energy investments, grid-modernisation projects, and renewed momentum in transport and construction sectors. Industry sources indicate that aluminium, copper, and zinc consumption has increased across renewable energy installations, EV component manufacturing, and national transmission system upgrades.

Aluminium producers report strong order inflows for extrusions, conductors, and alloyed products used in solar frames, wind turbine components, and lightweight mobility applications. Copper demand is also rising due to rapid expansion in EV charging networks, metro rail electrification, and high-capacity transmission corridors. With India's electricity demand expected to double by 2030, the power sector continues to be the single-largest growth engine for copper and aluminium.

Zinc producers, meanwhile, highlight growth led by enhanced galvanisation in railway infrastructure, coastal bridges, and industrial structures. The government's focus on corrosion-resistant public infrastructure has increased the use of zinc-coated components in multiple states.

Industry sentiment remains cautiously optimistic. While global price volatility and logistics costs continue to pose challenges, India's domestic demand outlook appears stable. Producers are also increasing emphasis on recycled metal input, driven by sustainability imperatives and lower energy costs.

Overall, India's non-ferrous value chain is witnessing a structural shift: from volume-led growth toward technology-integrated, decarbonisation- aligned, and demand-driven expansion.

Foundry Sector in India Records Upswing as Auto, Engineering and Capital Goods Segments Stabilise

INDIA'S FOUNDRY sector has recorded a steady recovery in 2025 after facing prolonged challenges related to high energy costs, inconsistent order cycles, and raw material price fluctuations. Foundries across major clusters Coimbatore, Rajkot, Belgaum, Pune, and Kolhapur report improved utilisation levels as automotive, agricultural machinery, pump manufacturing, and capital goods industries stabilise.

The domestic auto sector remains the single-most important demand driver, especially the commercial vehicle, tractor, and two-wheeler components segments. BS-VI emission norms and a shift to lighter, precision-engineered castings have encouraged foundries to upgrade technology and adopt better process controls.

Industrial machinery and general engineering castings are also seeing renewed activity with state-led capex increasing in several regions. The pump and valve industry is witnessing strong order visibility driven by water supply projects and wastewater management initiatives.

Foundry operators continue to invest in automation, molding line efficiency, and induction furnace modernisation to cope with workforce constraints and quality demands. Sustainability concerns are rising, with several units transitioning to energy-efficient melting practices and improved sand reclamation systems.

Indian Casting Exporters Eye New Markets as Global Supply Chains Diversify

INDIAN CASTING exporters are witnessing renewed interest from global buyers as supply chain diversification accelerates across Europe, the Middle East, and Southeast Asia. With geopolitical tensions and cost pressures prompting companies to reduce dependency on single-country sourcing, India is emerging as a preferred alternative for iron, steel, and non-ferrous castings.

Exporters report increased enquiries for automotive components, hydraulic parts, industrial pumps, valves, and precision-machined castings. European buyers, in particular, see India as a reliable supplier with strong technical capabilities and competitive pricing.

Aluminium Downstream Industry Prepares for Strong Growth Driven by EVs and Lightweight Engineering

INDIA'S ALUMINIUM downstream processors anticipate a strong expansion phase as domestic industries increasingly adopt lightweight design principles. Extruders, rolling mills, and alloy producers report significant interest from EV manufacturers, battery makers, and renewable energy companies.

In the electric mobility ecosystem, aluminium is emerging as a preferred material for battery enclosures, vehicle structures, motor housings, and thermal management components due to its high strength-to-weight ratio and corrosion resistance. Several Tier-1 suppliers are working closely with domestic extruders to localise EV component production.

The solar PV sector is another major driver, with large EPC companies placing advanced orders for aluminium frames and mounting structures. New renewable energy targets for FY26–27 are expected to further accelerate demand.

Downstream manufacturers highlight growing emphasis on high-value alloys, precision extrusions, surface finishing technologies, and CNC machining capabilities. Many firms are investing in R&D to meet the demanding specifications of mobility, aerospace, and electrical industries.

Despite global price fluctuations, the long-term structural shift towards aluminium-intensive applications is encouraging producers to expand capacity, improve quality systems, and enhance recycling initiatives. The industry sees FY25–26 as a pivotal year for establishing India as a key global sourcing destination for value-added aluminium products.

Copper Industry Strengthens Investment in Value-Added & Renewable Energy Applications

INDIA'S COPPER value chain is experiencing a renewed investment cycle driven by strong demand from renewable energy, metro rail projects, and power transmission upgrades. With urbanisation accelerating and grid strengthening becoming a national priority, copper-intensive applications are growing rapidly.

Manufacturers of copper rods, winding wires, busbars, and tubes report strong enquiries from transformer OEMs, metro rail contractors, HVAC companies, and EV manufacturers. Copper's unmatched electrical conductivity and reliability make it indispensable for India's ongoing energy transition.

A noteworthy trend is the increasing shift towards value-added copper products. Precision copper tubes for HVAC and refrigeration, high-efficiency windings for motors, and specialised alloys for industrial machinery are gaining traction. Several domestic processors are expanding capacity and adopting automated casting and rolling technologies.

Primary Aluminium Producers Embrace Sustainability Through Scrap Integration & Renewable Power

INDIA'S PRIMARY aluminium producers are accelerating their transition toward greener, lower-carbon production models. With global customers demanding traceability and reduced environmental footprints, domestic smelters are integrating renewable power, increasing scrap usage, and investing in efficiency-enhancing technologies.

Several producers have begun developing hybrid melting lines capable of blending primary metal with high-quality recycled aluminium. This significantly reduces energy consumption and lowers the carbon footprint per tonne of metal produced.

Renewable energy procurement both captive and open access is another major focus area. Smelters and downstream plants are signing long-term renewable energy agreements to reduce dependency on coal-based captive power.

Digitisation is also playing a crucial role. Plants are adopting AI-enabled predictive maintenance, real-time energy monitoring systems, and automated casting lines to boost productivity and minimise wastage.

These initiatives align with India's broader sustainability goals & position domestic aluminium producers to compete more effectively in global markets where carbon transparency is becoming a procurement prerequisite.

Global Aluminium Market Stabilises as Renewable Energy and EV Sectors Drive Demand

THE GLOBAL aluminium market has shown signs of stabilisation in 2025 after two years of price volatility driven by geopolitical tensions, fluctuating energy costs, and uneven industrial recovery. Analysts report that aluminium demand is increasingly being shaped by structural drivers rather than cyclical ones particularly renewable energy, electric mobility, and lightweight engineering.

China, the world's largest aluminium producer, continues to maintain tight control over new capacity additions due to energy consumption caps and carbon reduction mandates. This has helped curb oversupply and kept global prices within a more manageable band. Meanwhile, significant demand growth

from solar PV installations, wind power components, and EV manufacturing is supporting higher utilisation rates across Asia, Europe, and North America.

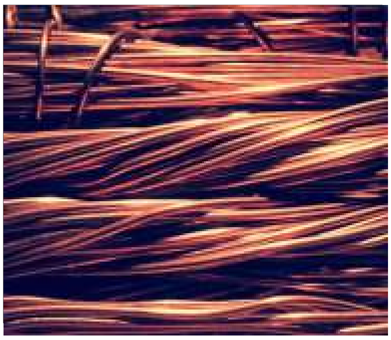
Europe's emphasis on low-carbon aluminium, driven by CBAM (Carbon Border Adjustment Mechanism) and stringent emissions standards, is creating a premium market for recycled and certified green aluminium. Producers in Europe and the Middle East are expanding scrap-based production and renewable-energy-powered smelting.

The US market is witnessing strong demand from aerospace, automotive, and packaging industries. However, concerns remain regarding high electricity costs and raw material supply disruptions.

Globally, the aluminium value chain is moving towards greater circularity. Major producers are investing in digital metallurgy, AI-enabled process control, and automated scrap sorting to reduce emissions and enhance efficiency.

Overall, the 2025 outlook remains positive, with long-term fundamentals pointing to a more resilient and environmentally accountable aluminium industry.

Copper Demand Surges Globally Amid Grid Modernisation and Electrification Push



COPPER DEMAND continues to rise in 2025 as nations accelerate electrification, infrastructure renewal, and clean-energy transition. The metal's unparalleled electrical conductivity makes it essential for power grids, renewable installations, EV charging networks, and industrial electrification.

In the US and European Union, massive investments in grid reinforcement and transformer upgrades have created sustained demand for refined copper and value-added copper components. The US Inflation Reduction Act and Europe's Green Deal continue to support copper-intensive industries, especially wind and solar.

Asia remains the world's fastest-growing copper consumer, led by India's and China's expanding power transmission networks, metro rail projects, and electric mobility plans. However, supply constraints persist due to disruptions at major South American mines, particularly in Chile and Peru, where labour issues and environmental pressures have slowed production growth.

Zinc Producers Strengthen Focus on Infrastructure Protection as Corrosion Costs Rise Worldwide

GLOBAL ZINC producers are benefiting from rising awareness about corrosion-related economic losses. According to international studies, corrosion costs the world economy billions of dollars annually, particularly in coastal infrastructure, transport systems, and industrial facilities.

Zinc consumption is rising in galvanised steel, especially in South Asia, the Middle East, Europe, and the US. Governments are increasingly mandating corrosion-resistant materials for bridges, marine structures, and railway networks. With climate change intensifying temperature fluctuations and humidity levels, long-term corrosion protection has become a priority.

Producers across South Korea, Europe, and the Middle East are launching high-purity zinc grades tailored for advanced galvanising applications. Directly alloyed products with aluminium and magnesium are also gaining traction for automotive body panels and lightweight engineering.

Recycling continues to strengthen the global zinc supply chain. New technologies in pyro-metallurgy and hydrometallurgy are improving recovery rates from zinc ash, sludge, and secondary raw materials.

Global Foundry Industry Rebounds as Automotive and Machinery Orders Recover

THE GLOBAL foundry industry has entered a period of gradual recovery in 2025, driven by stabilisation in the automotive sector and rising demand for industrial machinery, pumps, construction equipment, and agricultural implements. Foundries in Europe, Turkey, Southeast Asia, and North America report improved order books compared to the previous two years.

The automotive sector remains a major catalyst. With EV platforms requiring specialised castings for drive components, structural supports, and thermal management systems, foundries are investing heavily in high-pressure die casting (HPDC), precision moulding lines, and lightweight alloy development. Aluminium and magnesium castings are particularly in demand.

Europe's foundry clusters are adopting digital tools such as process simulation, automated core-making, and energy-optimised melting systems to enhance efficiency. In the US, reshoring initiatives and supply chain diversification are bringing more casting demand back to domestic producers.

Asia continues to strengthen its manufacturing base. Taiwan, Vietnam, and Indonesia are emerging as competitive casting hubs for mid-volume, high-quality production, while China continues to dominate in mass manufacturing.

Despite the positive momentum, challenges remain — including high energy costs, workforce shortages, and environmental compliance pressures. However, industry associations worldwide expect steady growth through 2026 as global industrial activity continues to expand.

Global Scrap Trade Expected to Expand as Circular Manufacturing Gains Momentum

THE GLOBAL scrap metal trade is expected to grow significantly in 2025 as industries accelerate their transition toward circular manufacturing, low-carbon production, and resource efficiency. Recycled metals particularly aluminium, copper, and stainless steel are now seen as strategic materials for decarbonisation.

Europe continues to lead in scrap processing technologies, with advanced sorting systems and digital traceability solutions ensuring high-purity secondary materials. The US is witnessing strong growth in demand for recycled aluminium as automotive OEMs seek low-carbon feedstock. Asian economies, including India, Vietnam, and Malaysia, are emerging as major scrap importers due to rising manufacturing output and the rapid expansion of foundries, rolling mills, and extrusion plants. Policy reforms in several countries are streamlining scrap import norms while tightening quality controls.

Nickel Market Faces Tightness as Battery Demand Outpaces Supply Growth

THE GLOBAL nickel market is experiencing tightening conditions in 2025 due to surging demand from lithium-ion battery manufacturers and slower-than-expected mine expansions. High-nickel chemistries (NCM, NCA) continue to dominate the EV battery landscape, pushing nickel consumption to new highs.

While Indonesia remains the world's largest producer, environmental concerns, regulatory uncertainties, and infrastructure bottlenecks have slowed new HPAL (High Pressure Acid Leach) project approvals. This has created supply-side pressures. China's demand for nickel matte and intermediates continues to grow as its EV sector expands rapidly

Europe and North America are focusing on securing stable, low-carbon nickel supply chains. Several joint ventures are emerging between automakers, mining companies, and battery manufacturers to ensure raw material security.

The stainless steel industry, which traditionally consumes over 65% of global nickel, is adapting to these dynamics by increasing use of low-nickel or nickel-free grades where feasible. Analysts expect nickel prices to remain firm in the medium term, with volatility driven by technology shifts, regulatory environmental reforms, and global EV adoption rates.

Segment wise Comparative Production, Domestic Sales & Exports data for the month of SEPTEMBER 2025

Report by *SIMA*
Numbers of Vehicles

CATEGORY SEGMENT / SUBSEGMENT	PRODUCTION SEPTEMBER			DOMESTIC SALE SEPTEMBER			EXPORTS SEPTEMBER		
	2024-25	2025-26	% Change	2024-25	2025-26	% Change	2024-25	2025-26	% Change
Passenger Vehicles*									
Passenger Cars	1,25,409	1,48,386	18.3%	97,564	98,364	0.8%	35,421	43,715	23.4%
Utility Vehicles	2,25,942	2,59,818	15.0%	2,06,217	2,04,392	-0.9%	31,636	43,252	36.7%
Vans	11,727	13,201	12.6%	11,908	10,035	-15.7%	322	795	146.9%
Total Passenger Vehicles	3,63,078	4,21,405	16.1%	3,15,689	3,12,791	-0.9%	67,379	87,762	30.3%
Three Wheelers									
Passenger Carrier	93,456	1,13,155	21.1%	65,826	71,657	8.9%	25,707	40,624	58.0%
Goods Carrier	10,487	10,112	-3.6%	10,910	10,442	-4.3%	247	304	23.1%
E-Rickshaw	3,691	1,859	-49.6%	2,319	1,672	-27.9%	17	-	-100.0%
E-Cart	611	351	-42.6%	628	306	-51.3%	-	-	-
Total Three Wheelers	1,08,245	1,25,477	15.9%	79,683	84,077	5.5%	25,971	40,928	57.6%
Two Wheelers									
Scooters	7,12,192	7,86,101	10.4%	6,72,414	7,33,391	9.1%	54,209	54,061	-0.3%
Motorcycles	15,42,616	16,90,239	9.6%	12,98,610	13,73,750	5.8%	3,17,468	3,73,875	17.8%
Mopeds	46,550	49,924	7.2%	54,969	53,748	-2.2%	804	1,626	102.2%
Total Two Wheelers	23,01,358	25,26,264	9.8%	20,25,993	21,60,889	6.7%	3,72,481	4,29,562	15.3%
Quadricycle	358	508	41.9%	3	-	-	578	516	-10.7%
GRAND TOTAL	27,73,039	30,73,654	10.8%	24,21,368	25,57,757	5.6%	4,66,409	5,58,768	19.8%

* BMW, Mercedes, JLR and Volvo Auto data are not available
** Daimler data is not available
Society of Indian Automobile Manufacturers (15/10/2025)

Category & Company wise Summary Report for the month of September 2025 and Cumulative for APRIL-SEPTEMBER 2025

Report by *SIMA*
Report II
Numbers of Vehicles

CATEGORY SEGMENT / SUBSEGMENT MANUFACTURER	PRODUCTION				DOMESTIC SALES				EXPORTS			
	SEPTEMBER		APRIL - SEPTEMBER		SEPTEMBER		APRIL - SEPTEMBER		SEPTEMBER		APRIL - SEPTEMBER	
	2024	2025	2024-25	2025-26	2024	2025	2024-25	2025-26	2024	2025	2024-25	2025-26
Three Wheelers												
Atul Auto Ltd	3,366	3,383	16,427	16,984	3,062	2,971	14,296	14,367	299	532	1,122	1,811
Bajaj Auto Ltd	68,865	78,412	3,40,277	3,82,053	52,551	52,064	2,47,927	2,49,677	15,910	27,071	87,907	1,35,684
Baxy Ltd	922	666	2,920	2,126	918	666	3,052	2,162	-	20	-	142
Force Motors Ltd	-	-	672	-	-	-	-	-	-	-	630	-
Mahindra & Mahindra Ltd	10,702	13,512	43,087	54,869	10,044	13,017	40,614	53,578	229	44	625	587
Piaggio Vehicles Pvt Ltd	11,746	8,946	59,745	53,565	10,006	8,849	51,620	44,115	1,180	1,797	6,670	9,371
Pinnacle Mobility Solutions Pvt Ltd	-	53	-	217	-	23	-	54	-	-	-	-
TI Clean Mobility Pvt Ltd	882	1,004	3,859	3,600	752	810	3,796	3,748	-	-	-	3
TVS Motor Company Ltd	11,762	19,501	69,020	1,00,893	2,350	5,677	12,494	26,749	8,353	11,464	56,245	71,678
Total Three Wheelers	1,08,245	1,25,477	5,36,007	6,14,307	79,683	84,077	3,73,799	3,94,450	25,971	40,928	1,53,199	2,19,276
Two Wheelers												
Ather Energy Pvt. Ltd	17,317	26,789	67,354	1,12,863	16,582	25,137	64,718	1,09,897	80	1,034	320	1,776
Bajaj Auto Ltd	3,87,048	4,32,643	19,54,802	20,48,019	2,59,333	2,73,188	12,19,298	11,25,920	1,41,156	1,57,665	7,64,827	8,91,858
Hero MotoCorp Ltd	6,26,682	6,31,716	30,51,235	30,46,827	6,16,706	6,47,591	29,40,666	28,81,784	20,340	39,638	1,14,168	1,76,000
Honda Motorcycle & Scooter India Pvt Ltd	5,74,027	5,50,045	31,60,621	31,06,747	5,36,391	5,05,693	28,81,419	26,82,038	47,242	62,471	2,76,958	3,11,517
India Kawasaki Motors Pvt Ltd	304	168	1,575	1,020	411	368	2,012	2,202	-	-	-	-
India Yamaha Motor Pvt Ltd	93,691	1,03,567	5,11,156	4,86,326	66,705	73,307	3,68,565	3,21,414	30,137	27,848	1,36,713	1,71,147
Okinawa Autotech Pvt. Ltd	1,060	NA	1,446	112	1,004	NA	1,320	73	-	-	-	-
Piaggio Vehicles Pvt Ltd	4,970	3,861	31,475	27,390	3,011	2,802	18,171	16,174	1,298	1,823	13,003	11,081
Royal-Enfield (Unit of Eicher Motors)	68,872	1,13,467	4,80,570	6,07,929	79,326	1,13,573	4,10,843	5,21,482	7,652	10,775	43,936	70,441
Suzuki Motorcycle India Pvt Ltd	99,950	1,27,763	6,25,468	6,89,602	77,263	1,05,886	5,16,530	5,70,472	21,922	17,664	-	1,17,702
Triumph Motorcycles India Pvt Ltd	40	19	230	77	123	65	654	376	-	-	1,03,345	-
TVS Motor Company Ltd	4,27,397	5,36,226	22,33,391	26,99,629	3,69,138	4,13,279	17,40,784	20,04,807	1,02,654	1,10,644	5,05,875	6,80,888
Total Two Wheelers	23,01,358	25,26,264	1,21,19,323	1,28,26,541	20,25,993	21,60,889	1,01,64,980	1,02,36,639	3,72,481	4,29,562	19,59,145	24,32,410
Quadricycle												
Bajaj Auto Ltd	358	508	3,512	2,216	3	-	107	4	578	516	3,494	2,214
Total Quadricycle	358	508	3,512	2,216	3	-	107	4	578	516	3,494	2,214
GRAND TOTAL	27,73,039	30,73,654	1,51,35,074	1,60,13,135	24,21,368	25,57,757	1,26,20,029	1,26,82,175	4,66,409	5,58,768	24,92,517	30,99,784

NA-Not Available
Society of Indian Automobile Manufacturers (15/10/2025)

Summary Report: Cumulative Production, Domestic Sales & Exports data for the period of JULY - SEPTEMBER 2025

Report by SIMA
Numbers of Vehicles

CATEGORY SEGMENT / SUBSEGMENT	PRODUCTION JULY - SEPTEMBER			DOMESTIC SALE JULY - SEPTEMBER			EXPORTS JULY - SEPTEMBER		
	2024-25	2025-26	% Change	2024-25	2025-26	% Change	2024-25	2025-26	% Change
Passenger Vehicles*									
Passenger Cars	4,37,560	4,52,747	3.5%	3,18,805	3,18,895	0.0%	1,04,196	1,25,513	20.5%
Utility Vehicles	7,95,861	8,30,898	4.4%	6,97,569	6,83,014	-2.1%	90,082	1,13,374	25.9%
Vans	39,287	42,052	7.0%	38,763	37,291	-3.8%	1,918	2,667	39.1%
Total Passenger Vehicles	12,72,708	13,25,697	4.2%	10,55,137	10,39,200	-1.5%	1,96,196	2,41,554	23.1%
Commercial Vehicles**									
M&HCVs									
Passenger Carrier	13,174	17,559	33.3%	13,416	13,717	2.2%	2,458	4,277	74.0%
Goods Carrier	73,308	75,230	2.6%	69,524	74,332	6.9%	2,902	4,853	67.2%
Total M&HCVS	86,482	92,789	7.3%	82,940	88,049	6.2%	5,360	9,130	70.3%
LCVS									
Passenger Carrier	14,591	13,044	-10.6%	11,864	11,752	-0.9%	1,088	1,247	14.6%
Goods Carrier	1,36,829	1,57,959	15.4%	1,26,659	1,39,980	10.5%	13,204	13,634	3.3%
Total LCVs	1,51,420	1,71,003	12.9%	1,38,523	1,51,732	9.5%	14,292	14,881	4.1%
Total Commercial Vehicles	2,37,902	2,63,792	10.9%	2,21,463	2,39,781	8.3%	19,652	24,011	22.2%
Three Wheelers									
Passenger Carrier	2,62,621	3,20,464	22.0%	1,72,855	1,94,204	12.4%	80,814	1,21,654	50.5%
Goods Carrier	29,811	31,577	5.9%	27,656	29,387	6.3%	1,087	1,803	65.9%
E-Rickshaw	8,866	3,795	-57.2%	7,227	4,069	-43.7%	17	23	35.3%
E-Cart	978	1,737	77.6%	980	1,579	61.1%	-	-	-
Total Three Wheelers	3,02,276	3,57,573	18.3%	2,08,718	2,29,239	9.8%	81,918	1,23,480	50.7%
Two Wheelers									
Motorcycles	19,90,217	22,28,516	12.0%	18,32,306	20,59,957	12.4%	1,58,553	1,77,957	12.2%
Scooters	41,31,732	45,59,934	10.4%	32,09,965	33,70,495	5.0%	8,75,416	11,08,109	26.6%
Mopeds	1,38,188	1,37,105	-0.8%	1,37,078	1,31,625	-4.0%	2,028	9,402	363.6%
Total Two Wheelers	62,60,137	69,25,555	10.6%	51,79,349	55,62,077	7.4%	10,35,997	12,95,468	25.0%
Quadricycle	1,369	1,277	-6.7%	28	-	-	1,580	1,248	-21.0%
GRAND TOTAL	80,74,392	88,73,894	9.9%	66,64,695	70,70,297	6.1%	13,35,343	16,85,761	26.2%

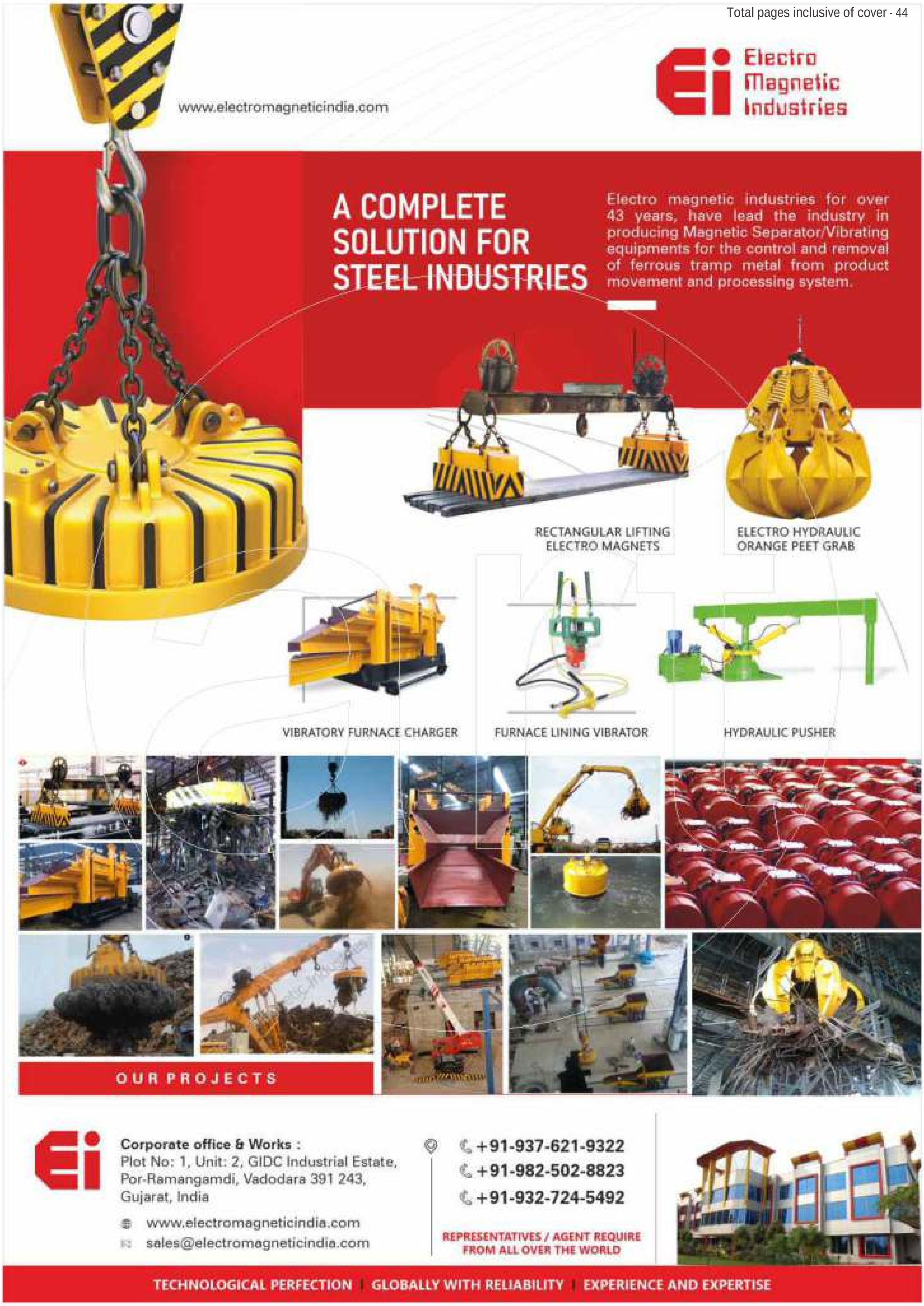
* BMW, Mercedes, JLR and Volvo Auto data are not available
** Daimler data is not available
Society of Indian Automobile Manufacturers (15/10/2025)

Summary Report: Cumulative Production, Domestic Sales & Exports data for the period of APRIL-SEPTEMBER 2025

Report I, by SIMA
Numbers of Vehicles

CATEGORY SEGMENT / SUBSEGMENT	PRODUCTION APRIL - SEPTEMBER			DOMESTIC SALE APRIL - SEPTEMBER			EXPORTS APRIL - SEPTEMBER		
	2024-25	2025-26	% Change	2024-25	2025-26	% Change	2024-25	2025-26	% Change
Passenger Vehicles*									
Passenger Cars	8,73,288	8,62,803	-1.2%	6,60,098	6,21,886	-5.8%	2,05,091	2,29,281	11.8%
Utility Vehicles	15,23,145	16,23,849	6.6%	13,43,363	13,53,270	0.7%	1,67,757	2,11,373	26.0%
Vans	79,799	83,419	4.5%	77,682	75,926	-2.3%	3,831	5,230	36.5%
Total Passenger Vehicles	24,76,232	25,70,071	3.8%	20,81,143	20,51,082	-1.4%	3,76,679	4,45,884	18.4%
Commercial Vehicles**									
M&HCVs									
Passenger Carrier	28,042	40,420	44.1%	30,590	32,114	5.0%	4,441	7,450	67.8%
Goods Carrier	1,50,528	1,52,581	1.4%	1,38,105	1,39,834	1.3%	5,132	8,121	58.2%
Total M&HCVS	1,78,570	1,93,001	8.1%	1,68,695	1,71,948	1.9%	9,573	15,571	62.7%
LCVS									
Passenger Carrier	31,938	31,112	-2.6%	27,435	28,701	4.6%	2,106	2,173	3.2%
Goods Carrier	2,78,206	2,97,749	7.0%	2,50,073	2,62,853	5.1%	23,713	25,696	8.4%
Total LCVs	3,10,144	3,28,861	6.0%	2,77,508	2,91,554	5.1%	25,819	27,869	7.9%
Total Commercial Vehicles	4,88,714	5,21,862	6.8%	4,46,203	4,63,502	3.9%	35,392	43,440	22.7%
Three Wheelers									
Passenger Carrier	4,62,852	5,46,338	18.0%	3,06,463	3,30,075	7.7%	1,51,294	2,16,511	43.1%
Goods Carrier	59,097	59,482	0.7%	54,503	55,383	1.6%	1,888	2,742	45.2%
E-Rickshaw	12,267	6,261	-49.0%	10,946	6,662	-39.1%	17	23	35.3%
E-Cart	1,791	2,226	24.3%	1,887	2,330	23.5%	-	-	-
Total Three Wheelers	5,36,007	6,14,307	14.6%	3,73,799	3,94,450	5.5%	1,53,199	2,19,276	43.1%
Two Wheelers									
Scooters	37,82,478	41,24,266	9.0%	34,97,300	37,21,709	6.4%	3,14,533	3,22,604	2.6%
Motorcycles	80,76,280	84,52,894	4.7%	64,07,887	62,73,944	-2.1%	16,41,804	20,97,158	27.7%
Mopeds	2,60,565	2,49,381	-4.3%	2,59,793	2,40,986	-7.2%	2,808	12,648	350.4%
Total Two Wheelers	1,21,19,323	1,28,26,541	5.8%	1,01,64,980	1,02,36,639	0.7%	19,59,145	24,32,410	24.2%
Quadricycle	3,512	2,216	-36.9%	107	4	-96.3%	3,494	2,214	-36.6%
Grand Total	1,56,23,788	1,65,34,997	5.8%	1,30,66,232	1,31,45,677	0.6%	25,27,909	31,43,224	24.3%

* BMW, Mercedes, JLR and Volvo Auto data are not available
** Daimler data is not available
Society of Indian Automobile Manufacturers (15/10/2025)



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