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Dr. Reji Mathai
Director - ARAI, Pune

■ **ARAI to support EV penetration and facilitate building EV ecosystem**

■ **1st RAA conference - A Grand Success**

■ **Importance of interdisciplinary studies in metallurgy & material science- A study**



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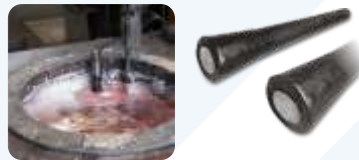
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D. A. Chandekar Editor

Dear Readers,

Many international agencies including IMF have predicted that Indian economy will grow by around 6% in 2023-24. This growth rate beats all the major economies such as the US, China, Japan, Germany etc. If this has to happen, the infrastructure development has to continue with the same speed which will automatically consume huge volumes of metals. Thus if the Indian economy is to grow decently, the metallurgical sector has to perform well.

Today, exports is one of the key factors in the growth of Indian metals sector and around 30% of India's metal & metal products exports are going in the EU. Recently the EU has proposed 'Carbon Border Adjustment Mechanism' (CBAM) a tariff on the import of carbon intensive goods such as steel, aluminium etc. This is likely to impact the India's metals exports to the Europe. The exporting companies will have to start collecting and reporting the carbon data. The CBAM levy is expected to come in gradually in a phased manner by 2026 and will be linked with EU carbon market prices. This will clearly act as a trade barrier for Indian metals exports to EU in coming years. As per the Indian metal business houses, this is not as per the Paris agreement on carbon emission where it was agreed that the developed countries will bear a major share in reduction of global carbon footprint. It is also not compliant with WTO guidelines. India has committed

Editorial Desk



itself to become carbon neutral by 2070.

Such a move by the EU will put a lot of pressure on not only Indian metal producers to reduce the carbon footprint but also on Indian government to supply clean energy to the producers, otherwise they will be at a clear disadvantage with respect to their EU counterparts where green grids are available. Also it is an uphill task for Indian producers to collect, monitor and report the carbon data as they have to set up new systems and processes. We understand the Indian government has taken the matter to WTO and asked to intervene.

In today's times, international relations and geopolitics have become very complicated. On one side it is guided by self interests and on the other side, it is also based on putting hurdles in the growth of competing countries, the ones which are not in our lobby. This also includes taking positions at international forums which will suit our friends / lobby members and will hurt the others. Such behaviour has become the norm of today's geopolitics. This directly affects the international trade and metallurgical industry is no exception to it.

The recent move by the EU to introduce CBAM with respect to the carbon intensive imports may look as a step towards making the planet green, free from carbon emissions, but is it really so? Does it have any bearing with India's position with respect to Ukraine Russia war which now has practically become Europe Russia war? Or is it a move to suppress India's growing economic power? I am really confused. What do you think?

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Dr. Reji Mathai Director - ARAI, Pune

ARAI to support EV penetration and facilitate building EV ecosystem

Dr. Mathai has vast experience of more than 28 years in the field of engine and vehicle testing, emission studies and ambient air quality. He has done his doctorate from IIT Delhi.

He has been a part of Auto Fuel Vision & Policy 2025 Committee for drafting the policy. He is a member of various committees of Government & bodies, like BIS and CPCB, etc. where he articulates views of mobility concerns in these forums to facilitate future roadmap.

He has published more than 50 papers in national and international forums. He has 2 patents to his credit. He is a member of NABL, Pune Knowledge Cluster, life member of TSI, Chairman of SAE Western India Section and Secretary of CIMAC India.

D. A. Chandekar, Editor & CEO had an exclusive interaction with Dr. Reji Mathai, Director- ARAI, Pune to understand the research being carried out at ARAI, EV culture & the future of Automobile sector in the country.

Excerpts :

1) Please share the profile of activities & research carried out at Automotive Research Association of India (ARAI).

The Automotive Research Association of India (ARAI), established in 1966, is a leading automotive R&D organisation set up by the automotive industry with the Government of India. ARAI is affiliated to the Ministry of Heavy Industries and is recognized by the Department of Scientific and Industrial Research as a Scientific and Industrial Research Organization

(SIRO). An experienced and well-trained human resource of 720+ is ARAI's main strength. The state-of-the-art Laboratories of ARAI are well equipped with the most advanced facilities in the areas of Emission evaluation, Noise Vibration and Harshness, Structural Dynamics, Engine Development, Environment Research, Computer aided engineering, Vehicle Evaluation, Active and Passive Safety, Material Evaluation, Automotive Electronics and Calibration etc. ARAI also has an Academy.

ARAI offers Testing & Validation, Certification & Homologation, Design & Development, Research & Development, Projects & Consulting, Standardisation & Harmonisation, Education & Training, Testing Solutions services. ARAI also offers Automotive Technologies,

Data Bases, Software tools, Testing Facilities as some of its products.

Research Programme of ARAI include R&D projects in the areas of Simulator, EV Chargers, Hybrid Vehicle development, HCCI Engine, HCNG Engine, New High Specification 3 Cylinder Engine, Bio-Diesel Engine, Dual Fuel Engine, Electronic Fuel Injection System, Integrated Safety System, Material Data Bank, ECU development for GDI, Electric and Hybrid Electric Vehicles, ADAS, Autonomous vehicles, Transmission, Vehicle Dynamics, 3D Road Profile, Advanced Front Lighting System (AFLS) solution etc. Some of the R&D projects of national interest supported by Government of India include E axle Powertrain Kit for 3-wheeler application, Battery Thermal Management System for 2 & 3 wheeler EV application, calibration strategy for BS-VI RDE by virtual

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To keep itself at the forefront of technologies, ARAI continuously upgrades its facilities through government and internal funding. Major expansion and upgradation were carried out under National Automotive Testing, R&D and Infrastructural Project (NATRIIP) in the areas of Crash, Power Train and Fatigue at ARAI – Homologation and Technology Centre (ARAI – HTC). Also, Centres of Excellence in the areas of Power-Train, Fatigue and Materials have been established at ARAI – HTC. ARAI has also set up Environmental Research Laboratory which undertakes environmental research programmes like Air Quality monitoring for

cities.

ARAI assists the Government of India in formulation of automotive industry standards and harmonisation of regulations. ARAI is also assisting Government of India in establishing vehicle Inspection and Certification centres all across the country. ARAI also lends its capabilities humbly to non-automotive sectors such as defence, railways, medical etc. to help in their development work.

ARAI is proud to be a part of the Make in India crusade through its services that support, facilitate, and augment Innovate in India, Design in India, Validate in India and Skill India.

2) What research is being carried out to reduce the weight & increase the fuel efficiency of the vehicle?

Importance of light weighting is paramount in Automotive Industry, considering fact that Vehicle mass has inverse relation with Fuel Economy. Reduction in mass gives substantial benefit in improving fuel economy for fossil fuel vehicles and helps in improving range for Electric powered vehicles. Burning fossil fuels for transport application is important factor in causing air pollution in the entire

world. Reduction in the vehicle mass gives substantial benefit in improving fuel economy.

ARAI is working on all three approaches of the light weighting process viz. materials, process development and design. In terms of advanced materials, there are advanced high strength steels, aluminium alloys, magnesium alloys, composites are coming up. ARAI has already geared up for characterizing and understanding these materials. In terms of process development, we are working on developing forging process for magnesium alloys. These alloys are currently used predominantly in aerospace applications but it is envisaged that sooner they will occupy niche space in automobiles as well. ARAI is also working on process optimizing through simulation of casting, forging and moulding processes.

Marginal improvement in the fuel economy and emissions per kilometre travelled significantly impacts surrounding environment. The quantum of benefit due to light weighting increases where there are several start-and-stop conditions like city buses. In view of this, research has been carried out by ARAI to understand weight reduction parameters for city buses. It was found that the major





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Face to Face



weight of the bus is of its super structure which is made of steel and has a great potential for weight reduction. Lightweight superstructure is developed by ARAI using recyclable material Aluminium. Extrusions and joining technique suitable for Indian road load application is developed and Patent for the same applied along with leading Indian Aluminium material manufacturer. Bus Prototypes developed for 9m Staff bus, 12m Low Entry and 12m SLF model. Superstructure is >30% lighter compared to existing steel superstructure. Fuel consumption trials carried out for typical usage shows fuel economy improvement of 8-10%, which translates into ~3000 litres of fuel saving per year per bus. Bus prototypes conform to the regulatory requirement viz. AIS:052, AIS:153 and UBS-II. Technology of light weighting through aluminium can be directly adapted for EV/HEV buses to compensate for increased weight due to electrification.

ARAI has also worked with leading Indian Aluminium material manufacturer for developing light weighting

goods carriers viz. Bulker for transportation of fly ash and Aluminium trailer of higher laden capacity. Lightweight designs resulted in increasing laden capacity in addition to improved fuel economy during empty trips. ARAI is also engaged in research related to development of lightweight Aluminium Bus Passenger seats, which has immense potential for further reduction of Vehicle mass.

3) Role of emerging materials and manufacturing technologies in shaping auto industry?

Major changes happening in auto industry are related to switching to e-mobility and increasing occupant safety. For e-mobility, IC engine and fuels are replaced by electric motors and energy storage devices (batteries, fuel cells etc.). NVH scenario is drastically changing as major source of noise and vibration i.e. IC engine is replaced by quieter systems like battery and motors. Magnets for motors is another challenge. Power transmission / drive line are changing.

For improving occupant safety, various advanced high strength steels and ultra-high strength steels are

coming up. For light weighting, usage of plastics and composites is increasing. In modern passenger cars, approximately 15- 18% (by weight)plastics/ composites are used. As mentioned earlier, magnesium alloys are promising materials for new age lightweight concepts. So, we can see that all these changes happening are driven through novel materials – be it battery / energy storage materials, magnets, AHSS / UHSS, aluminum and magnesium alloys, plastics and composites.

These materials are also demanding newer manufacturing technologies. Dissimilar material joining, near net shape forging, powder forging, coating and surface processing, molding processes are some of them. Additive manufacturing is considered as very promising technology for near future and many researchers are working on making it suitable for bulk manufacturing at economical level. So, all these emerging trends in energy storage, crashworthy structures, light-weighting and so on are driven by emergence of newer materials and manufacturing technologies.

4) A lot of robotics & artificial intelligence (AI) is being employed in production & running of an automobile. Can you throw more light in this?

Today, Artificial Intelligence based technologies are revolutionising the automotive industry by impacting entire automobile manufacturing process. AI based tools and machines are helping to design



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new automobiles, link supply chains, provide new comfort and safety features and automate factories. All these are helping to provide new experiences to customers. Use of these new technologies are proving to be differentiator factor for OEMs. We can witness the use of these technologies in broader transportation domain as well in form of intelligent transport systems, linkages with insurance services, value added customer services through connected technologies.

At ARAI, we are actively working in developing India-specific solutions using AI based techniques to make automobile safer and smarter. We are collaborating with Indian industry to provide solutions in areas like

1. India-specific data and scenario generation capturing Indian traffic conditions
2. Development of cost-optimised Advanced Driver Assistance Systems (ADAS) like Collision Warning System, Lane Departure Warning and Driver

Monitoring System

3. Improving functional safety as per guidelines of ISO 26262 standard

ARAI is also supporting industry by providing centralised engineering facilities like-

1. Data Centre and AI based software tools
2. Verification and Validation tools and service support from Software-Hardware level to Lab-level to vehicle-level at Test track level

5) EV seems to be the new buzzword in the industry. What research is being carried out at ARAI regarding the EV culture in the country?

ARAI has established a comprehensive infrastructure and facilities for testing, certification and development of the electric and hybrid vehicles under the FAME scheme of Government of India at its Green Mobility- Centre of Excellence.

At ARAI, extensive research is being carried out to support the EV penetration and facilitate building EV ecosystem, which include

- Development of Battery

safety standards such as AIS 156 and AIS 038 Rev 2 which is in line with Global Technical Regulation GTR 20.

- Battery safety lab to develop safe batteries from thermal runaway point of view.
- Developing indigenous technology for DC fast chargers so that Indian companies can manufacture it at affordable price.
- Developing electric retrofitting kits to convert older vehicles to electric power train

6) How do you see the Future of Automobile in the country?

Currently 4 key trends are dominating the Global Automotive industry, namely Connected, Autonomous, Shared and Electric (known as "CASE"). We are witnessing focused R&D, new features, new service models being offered around this "CASE" paradigm.

In India also, we are witnessing similar trends. In Indian context, the challenge will be offering "CASE" at affordable price. Also, we need to develop new technologies for India-specific conditions. Our geographical, cultural and driver behaviour conditions are different and unique. In view of this, solutions and services working at global level may not be directly work as it is for Indian conditions. At ARAI, we are focusing on developing such technology solutions across electric vehicle control systems, Autonomous / ADAS features, connected and cyber security domain to suit Indian conditions. ■

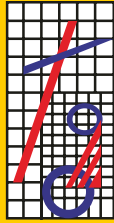
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Importance of interdisciplinary studies in metallurgy & material science- A study (Part-1)

The artificial intelligence tool Chat-GPT from Open-AI has been the talk of the town since Nov 2022. The semantic capabilities of this tool in terms of understanding questions asked in natural language and collating well-correlated responses, developed based on information available on the internet, preferred to its own database, offer a potential to at least partially substitute humans has been both an opportunity and a threat. We, at Metalworld, decided to experiment with this tool to ask a set of questions related to the technical world of metals, metallurgy and material science, and develop an article. We started with one question related to non-ferrous metals, specifically on 'which technical areas are likely to be important over the coming decade'; and then appended with related questions in various directions. Interesting to say that all the answers generally matched the known insights a long time expert would have given. In

addition, in some questions we asked data based on quantitative information such as 'who are the metallurgists/ material scientists who were awarded the Noble Prize?', we are quite surprised to read the answers- we didn't quite know their material science roots!. In some judgmental answers such as 'which are the most important technologies for metals over the last century?', we agree with the answers, since we, as trained metallurgists and practitioners of technology, are aware of the importance of these technologies. We do find that the tool does not, at least as of now, extrapolate its understanding to predict as yet unknown concepts, applications etc which may invade the field of metals and materials (with the exception of *electrode position for alloy development*', that had so far escaped my radar! The new tool, however did not miss it; and I will need to catch up not to miss out!); however this, we conjecture, is related to the logic that has been fed

into the tool; and may get provided at some time in future. Till then, such capability may remain the only value addition that human scientists may add!

Upcoming areas in non-ferrous metallurgy over next decade: Non-ferrous metallurgy, which is a branch of metallurgical engineering that deals with the extraction, processing, and refining of metals that do not contain iron. Some upcoming areas in non-ferrous metallurgy include:

1. Recycling of Metals: With increasing environmental concerns, recycling of metals has gained significant importance. Non-ferrous metallurgy is playing a significant role in recycling metals like aluminum, copper, zinc, and lead.
2. Rare Earth Metals: Rare earth metals are a group of 17 elements that are used in a wide range of industries, including electronics, renewable energy, and defense. Non-ferrous metallurgy is focused on developing efficient and cost-effective methods for extracting and refining these metals.
3. Light-weight alloys: The transportation industry is shifting towards electric vehicles, which require lightweight materials for better efficiency. Non-ferrous metallurgy is developing light-weight alloys based on aluminum, magnesium,



Sadguru Kulkarni

Retired President- Technology, Hindalco Industries Ltd Corporate, covering Research & Technology, Technical. Now a Freelance Consultant in FMCG, Minerals & Metals, Chemicals and Sustainability



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Feature

and titanium that have high strength and are corrosion-resistant.

4. Additive Manufacturing: Additive manufacturing, also known as 3D printing, is a rapidly growing technology that has the potential to revolutionize manufacturing. Non-ferrous metallurgy is working on developing new materials and alloys that can be used in additive manufacturing.

5. Energy Storage: The development of renewable energy sources has led to the need for efficient energy storage systems. Non-ferrous metallurgy is developing materials and alloys for batteries and other energy storage devices that have high energy density and are cost-effective.

What role will computational material science play in metallurgy?

Lowering the cost of computation has made memory intensive complex computations possible, economical and speedy. This has enabled complex mathematical models, hitherto available only in metallurgy textbooks, amenable to use for online computation. With this computational material science is likely to play an important role in metallurgy-manufacture and theory both. Some examples of this are already seen by the way of computational fluid dynamics- CFD, thermodynamics of metallurgical processes, and even material informatics.

Computational engineering has been playing an increasingly important role in the field of classical metallurgy, which involves the production, processing, and properties of metals and alloys. Some examples of the application of computational engineering in classical metallurgy include:

1. Modeling of microstructures: Computational modeling of microstructures is used to predict the formation and evolution of different phases in metals and alloys during processing. This helps to optimize processing parameters and improve the properties of the final product.
2. Simulation of casting processes: Computational fluid dynamics (CFD) simulations are used to optimize casting processes, predict defects, and improve the quality of castings.
3. Phase diagram calculations: Phase diagrams are important tools in classical metallurgy for predicting the behavior of alloys under different conditions. Computational methods such as thermodynamic modeling and ab-initio calculations are used to predict phase diagrams and optimize alloy compositions.
4. Prediction of mechanical properties: Computational modeling is used to predict the mechanical

properties of metals and alloys, such as strength, toughness, and fatigue resistance. This helps to optimize material properties and improve product performance.

5. Optimization of heat treatment processes: Computational modeling is used to optimize heat treatment processes for metals and alloys, which can improve the microstructure and mechanical properties of the final product.

Thus computational engineering is becoming an essential tool in classical metallurgy, allowing for more efficient and optimized production processes, improved material properties, structure-property relationship and better product performance.

It is interesting to see that the tool does not foresee any significant use of computation in classical processes such as the Hall-Heroult process for aluminum; however we will explore this with the right questions in near future.

Which new tools will facilitate the development of new alloys, essential to aid the intended applications? Addition of a new material is always a landmark event. While many chemicals have been invented every year, there has been only a small number of truly new materials. In metallurgy, new alloys are one way materials with new properties can be generated. Creating new alloys with improved properties is an important area of research in materials science and engineering. Some of the new technologies that are being used for the creation of alloys include:



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SHAPING PROGRESSIVE MOBILITY THROUGH EMERGING MATERIALS & MANUFACTURING TECHNOLOGY



AM & M 2023

4TH EDITION

31st May - 2nd June 2023

Call for Registrations

Topics

- Lightweight materials; Plastics and composites
- Materials & Manufacturing for e-mobility
- Advanced Material Characterization
- Alternate fuels and automotive fluids
- Material modelling, Design & Simulation
- Additive Manufacturing
- Manufacturing Processes and simulation
- Failure analysis & Process development
- Artificial Intelligence & Machine Learning
- Integrated Computational Materials Engineering (ICME)

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Feature

1. High-Throughput Experimentation: High-throughput experimentation (HTE) is a combinatorial materials science approach that enables the rapid synthesis and characterization of large numbers of alloys with varying compositions. This technique allows researchers to explore a wide range of alloy compositions and identify those with desirable properties.
2. Additive Manufacturing: Additive manufacturing, also known as 3D printing, is a rapidly growing technology that is being used to create new alloys. The ability to precisely control the composition and microstructure of printed alloys allows for the creation of materials with unique properties.
3. Molecular Dynamics Simulation: Molecular dynamics simulation is a computational technique that can be used to simulate the behavior of atoms and molecules in a material. This technique is being used to predict the properties of new alloys and optimize their composition and microstructure.
4. Powder Metallurgy: Powder metallurgy is a process for creating alloys from metal powders. This technique allows for the creation of alloys with high purity and controlled microstructure, which can result in improved

properties.

5. Electrodeposition: Electrodeposition is a process for creating alloys by depositing metal ions onto a substrate. This technique allows for the creation of alloys with controlled composition and microstructure, which can result in improved properties.

New technologies such as high-throughput experimentation, additive manufacturing, molecular dynamics simulation, powder metallurgy, and electrodeposition are being used to create new alloys with improved properties. These techniques are helping to advance the field of materials science and engineering and create new materials with a wide range of applications.

How will additive manufacturing help the applications on non-ferrous alloys?

Additive manufacturing (AM), also known as 3D printing, has revolutionized the manufacturing industry and is increasingly being used to create new metal components. Here are some examples of how additive manufacturing is being used to create new metal components:

1. Complex Geometries: Additive manufacturing allows for the creation of complex geometries that would be difficult or impossible to produce using traditional manufacturing techniques. This includes parts with internal channels or intricate shapes, which

can improve the performance of the final product.

2. Lightweight Components: Additive manufacturing can create lightweight metal components with high strength-to-weight ratios, which are particularly useful in aerospace, automotive, and other industries where weight reduction is important for performance and fuel efficiency.
3. Customization: Additive manufacturing enables the creation of customized metal components for specific applications. This includes medical implants, dental prostheses, and other products that require a personalized fit.
4. Improved Performance: Additive manufacturing allows for the creation of metal components with improved performance, such as increased strength, wear resistance, and corrosion resistance. This can result in longer-lasting and more durable products.
5. Reduced Waste: Additive manufacturing can reduce waste in the production process by creating parts with minimal material waste. This can lead to cost savings and environmental benefits.

Additive manufacturing is being used to create new metal components with complex geometries, lightweight designs, customized fit, improved performance, and reduced waste. As the technology continues to advance, it is expected that additive manufacturing will play an even greater role in the creation of metal components in a wide range of industries. ■

MEGA EVENT IN CHENNAI

1-2-3 DECEMBER 2023

Venue
Chennai Trade Centre,
Chennai, India



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International Conference & Exhibition on
Aluminium Diecasting Industry

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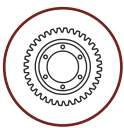


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Industry Update



Join hands to organize the Mega Event at Chennai Trade Centre, Chennai, and the hub in India for Automotive OEM & Auto components ancillaries.

Three days event from 1st to 3rd December 2023 will have exhibition & stalls spread over 3000 Sq.mtr put up by manufacturers, suppliers & service industry.

Event focus will be on theme-based conference &



Panel Discussions by eminent Industry leaders debating on New Technologies & upcoming challenges in Separate Conference Halls for Forging & Casting.

Convention Hall A – For International Conference on Aluminium Casting Technology with the theme: "Preparing for the Next...."

Convention Hall B – For International Conference on

GREAT DIECASTING TECHNOLOGY FORUM & FORGING TECHNOLOGY FORUM

Forging Technology with the theme: "Change for the Future"

We are expecting over 350 delegates and footfall of over 1000 visitors

Event will also encourage students & research scholars of Colleges/ Technical Institutes to participate in:-

- Special STUDENT DAY for engineering colleges
- &
- Project Competition for Postgraduate and PhD Students

CBMPL Placement Services

Overseas new Refractory Manufacturer is looking for **Sales & Marketing Head** as well as **Sr. Manager – Sales & Marketing**. Factory has the Annual Production Capacity (APC) of 1,00,000/- tonnes. It is situated in Gulf Cooperation Council (GCC) country.

I. Sales & Marketing Head

1. Job Description

- Developing, implementing and executing strategic marketing plans.
- Executing Sales & Marketing function for GCC Countries.
- Excellent execution skills and complete ownership of all marketing activities

2. Eligibility for Sales & Marketing Head

Qualification: M. B. A. (Marketing); B. Tech. (Ceramics) OR B. Tech. (Metallurgy)

Experience: 25 to 30 years marketing experience.

Expected: Thorough knowledge of Steel Plant Refractories and also exposure to the overall Refractory usage in other related Industries.

3. Estimated Package : INR 65,00,000/- to 70,00,000/-

II. Sr. Manager – Sales & Marketing

1. Job Description

- Implementing and executing strategic marketing plans.
- Executing Sales & Marketing function for GCC Countries.
- Working with senior management and other peers.

2. Eligibility for Sr. Manager

Qualification: B. Tech. (Ceramics) OR B. Tech. (Metallurgy)

Experience: 10 to 15 years marketing experience.

Expected: Good knowledge of Steel Plant Refractories.

3. Estimated Package : INR 25,00,000/- to 30,00,000/-.

Respond immediately with your latest resume, to hr.cbmpl@gmail.com clearly stating the **Post** you are applying for.

Placement Division

Chandekar Business Media Pvt. Ltd.



1st RAA conference - A Grand Success

A successful and power-packed marks the 1st RAA – MRC Metal Recycling Conference on 15 March, Dubai.

SHARIF, Founding Chairman, RAA, who addressed industry trends, challenges, and the future of metal recycling, and highlighted the objective



The Recycling Association of Africa (RAA) 1st metal recycling conference organised with Waste & Recycling MEA on March 15th at the Ritz Carlton Dife Dubai, was a grand success which brought together over 320 ferrous and non-ferrous traders, recyclers, manufacturers and other stakeholders from the Africa, Middle East, Europe, India, Asia and USA. To grace the occasion there was a high-level dignitaries from the African continent including government Ambassadors, the Secretary General of Kenya Iron & Scrap Metal Association (KISMA) and the Chairman of the Scrap Metal Council Kenya, who had highlighted on investment opportunities in African Recycling industry and highly praised the efforts of RAA.

The conference was opened with a Keynote Address by Dr. Salam

behind launching RAA and on membership, how RAA is bringing its membership data to the regional and global



associations in order to "close the loop" of the circular economy in Africa and beyond. Also, RAA has developed its membership with 270 quality African recycling companies whose membership were screened thoroughly, in addition to the 150 members from rest of

the recycling world, who were keen to connect with African based recyclers, making a total of 420 RAA members. Dr. SHARIF stated that he is willing to connect RAA members if they wish to take membership with the International Recycling associations in order to share trade and recycling standards with recycling stakeholders.

The RAA – MRC was a collective and team work of the Founders of RAA Dr. Salam SHARIF, Mr. Abdullah Gadawala, Mr. Shemir Yakub, and the support of RAA Board Members. The RAA Founders and the Board Members have been instrumental in creating a platform that brings together industry leaders and policymakers to exchange ideas and best practices for promoting sustainable recycling practices in Africa.

The panel discussions were highly engaging, with the panelists and audiences reflecting on various aspects of the metal recycling industry. Some of the key issues addressed were as follows: The impact of trade policies on the scrap markets, Investment opportunities in the African market for the metal scrap



Analysis



industry, Quality requirement for including recycled content in aluminium production, The need for recyclers to up their game to ensure responsible sourcing,

The conference was attended by leading industry experts, stakeholders and professionals from across Africa, Asia, Middle East and Europe, who were eager to



Construction and other industrial growth influencing the ferrous market; The optimistic outlook for the copper industry driven by various factors including the Electric Vehicles boom and more.....

share their experiences and insights on the current state of the metal recycling industry. The event provided a platform for participants to network, share best practices, and learn from each other's experiences. In line with conference, RAA

made an historical agreement with the Scrap Metal Council, Kenya to support sustainability goals by enhancing Kenyan recycling fraternity through investments and other recycling opportunities.

The conference was well-received by participants, who praised the RAA for organizing such an informative and engaging event. The Recycling Association of Africa is committed to promoting sustainable practices in the metal recycling industry in Africa, and events such as this conference are an important step towards achieving this goal. The RAA would like to thank all participants, speakers, sponsors, association partners and media partners for their support in making this event a success.





Chile's mining sector contracts 9% in March as copper production down 5%

According to Chile's National Institute of Statistics (INE), the country's industrial production index (IPI) contracted by 5.9% in March 2023 y-o-y due to a decline in Chile's mining and manufacturing sectors.

INE said that the domestic mining sector (IPMin index) decreased by 8.7% in March 2023 y-o-y, primarily as a result the lower activity registered in the country's metallic mining subsector, which was down 8.9% y-o-y due to the decrease in the extraction and processing of copper.

According to the report, Chile, the world's largest producer of copper, mined 440,389 tonnes of copper in March 2023, which is a decline of 4.8% compared to 462,360 tonnes mined in March 2022.

Moreover, Chile's manufacturing production index (IPMan) decreased by 5.5% in

March 2023 compared to the same month of the previous year, primarily due to the decline in manufacturing of chemical substances and products.

The agency added that the country's electricity, gas and water production index (IPEGA) increased by 2.3% in March 2023 compared to March 2022 primarily due to the growth in electricity generation.

Machine recycles scrap aluminium directly into vehicle parts

A machine that moulds scrap aluminium into automotive parts could help speed up production of electric vehicles while cutting down the industry's dependence on aluminium mining and extraction.

Indonesia to allow Freeport, Amman Mineral to ship copper concentrate until 2024

Indonesia will allow miners Freeport Indonesia and Amman Mineral Nusa Tenggara to continue exporting copper concentrate until next year, despite a ban starting this June, to allow for their smelters to be completed, the mining minister said on Friday.

The government is due to ban exports of raw minerals like copper and bauxite from June as part of efforts to attract investment into its metals processing industry and boost the value of its exports.

Delays to copper smelter construction caused by the pandemic prompted the government to temporarily exempt some firms from the ban, minister Arifin Tasrif told reporters.

"We are pushing so these smelters development can be concluded as soon as possible," he said, adding that they are expected to be completed in May next year.

He said Freeport and Amman will therefore be allowed to export until May 2024. The ministry will issue a regulation detailing requirement for the export leniency for copper.

Arifin said both smelters are currently at around 60 per cent completion.

Freeport Indonesia spokesperson KatriKrisnati said the company has not received an official notice regarding the export policy, adding that the company appreciates support from the government to help ensure its operational and investment continuity.

Copper hits six-week low on China demand and recession fears

Copper prices touched their lowest in more than a month on Thursday, pressured by weak demand in top metals consumer China and an expected slide into recession in some Western countries.

Three-month copper on the London Metal Exchange (LME) dropped 0.8% to \$8,486 a tonne in official open-outcry trading after hitting its lowest since March 16 at \$8,455.50.

Data on Thursday showed that profits at Chinese industrial companies fell 19.2% in March, underlining fragility in a sector that is a key consumer of metals.

"China's recovery from COVID and from the weakness last year is only taking place gradually in the industrial and construction sectors," said Edward Gardner at Capital Economics.

Chinese companies that make copper products told Reuters they are cutting output for the second quarter, typically the peak demand season, because of a slower than expected recovery in domestic consumption after COVID-19 and sluggish exports.

The most-traded June copper contract on the Shanghai Futures Exchange fell 0.8% to 66,560 yuan (\$9,612.66) a tonne.

Chinese demand is expected to weaken more next week as the country enters a May 1-3 holiday.

There have been some imports of copper into China backed by open import arbitrage, but with the holidays next week the LME price could lose as much as \$300 a tonne in the next few sessions, one trader said.

Wider global economic concerns fuelled by weak data from the United States is also weighing on the market, Gardner added.

"We expect the U.S. economy later this year to enter into a soft recession and we think over the next few months industrial metals prices will struggle, fall a bit further, due to developed economy weakness," he said.

Denting sentiment further were troubles in the U.S. banking sector.



News Update

LME aluminium shed 0.8% to \$2,309.50 a tonne, zinc dropped 1.3% to \$2,610.50 while nickel added 0.6% to \$23,780. Both tin and lead were little changed at \$25,750 and \$2,105 respectively.

Copper hits six-week low on China demand and recession fears

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As per the last day of April data showed that profits at Chinese industrial companies fell 19.2% in March, underlining fragility in a sector that is a key consumer of metals.

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EV sales cross 1 million in FY23, two-wheelers lead the way



Electric vehicle sales in India crossed the one million mark for the first time last fiscal, the two-wheeler segment leading the way. The Society of Manufacturers of Electric Vehicles (SMEV) stated that the EV industry as a whole registered 11,52,021 units, which was 58 percent more than FY22's 7,26,861 units.

Peru sees copper production boost in 2023, lithium permissions pending



The country mined some 2.44 million tonnes of copper in 2022, according to ministry data. In January, production slipped 3.6% from the year-ago period. Peru expects to produce

2.8 million tonnes of copper in 2023, Minister of Energy and Mines, Oscar Vera said in a news conference representing an almost 15% jump from last year. Peru, the world's no. 2 producer of the red metal, saw production affected late last year and at the beginning of this year after protests and road blockades spurred by the ouster and arrest of President Pedro Castillo. The mining sector is now "working as normal," Vera said. A Reuters analysis in early March showed that major copper mines were cranking up again after road blockades eased.

Vera added that he expects to approve permissions allowing the exploration of lithium, key in the production of electric vehicle batteries, "in coming months."

NALCO-BARC Releases India's 1st Bauxite CRM

National Aluminium Company Limited (NALCO), under Ministry of Mines, Govt. of India and country's leading manufacturer and exporter of alumina and aluminium, has successfully developed a Bauxite Certified Reference Material (CRM) naming as BARC B1201 in joint collaboration with Bhabha Atomic Research Centre (BARC). This is the first of its kind CRM in India and 5th in



Aluminium – a leader's take on exploring its potential to make it a green metal

As global concern over climate change deepens, the downstream aluminium industry is aggressively pursuing new solutions to decarbonise, meet their emission reduction objectives, and reduce energy costs. These efforts of the aluminium sector to minimise carbon emissions have an immediate and substantial effect on reducing global greenhouse gas emissions. This has not only far-reaching ramifications for a variety of businesses but also efficient means of combating the adverse effects of climate change. The increased interest in aluminium as a critical material for emission-reducing solutions such as electric automobiles and energy-efficient buildings is very encouraging. Aluminium has been utilised for a wide range of applications, including electrical transmission lines, defence, and building, but its potential as a green metal is truly astonishing.

How green

Aluminium is one of the most environmentally friendly materials available today due to its outstanding durability and recyclability. In fact, it is one of the most recyclable industrial materials and can be continuously recycled into the same product. This means that recycling can conserve up to 95 percent of the energy required to create aluminium from its virgin source. As we work towards a more sustainable future, the adaptability and environmental benefits of aluminium make it a great asset for a variety of businesses.

Aluminium dropped as U.S. economic data raised fears about a recession

Aluminum yesterday settled down by -0.17% at 207.15 as U.S. economic data raised fears about a recession that could darken the demand outlook for the metal. China's consumer demand recovery needs time to pick up due to the "scarring effect" of COVID-19 and the central bank will consolidate its financing support for the real economy, officials from the People's Bank of China (PBOC) said. The PBOC expects consumer price inflation to pick up later this year but there is no basis for long-term deflation or inflation in the country, Zou Lan, head of the monetary policy department at PBOC, said at a news conference in Beijing.

Global primary aluminum output rose 0.5% year on year in March to 5.772 million tonnes, data from the International Aluminium Institute (IAI) showed. Some Japanese aluminum buyers have agreed to pay global producers premiums in the April-June quarter of 2023 that are as much as 53% higher than the previous quarter, reflecting higher overseas prices. The Japanese buyers will pay premiums of between \$125-\$130 per tonne for shipments from April to June. Severe power shortages in China's southwestern Yunnan province are likely to cut aluminum production in the country's fourth-largest producing province.



the World. BARC B1201 was formally launched by Shri M.P. Mishra, Director (P&T), NALCO and Dr. A. C. Sahayam, Head of Division, National Centre for Compositional Characterisation of Materials in the presence of senior officials of NALCO and BARC at NALCO Research & Technology Centre.

Expressing pride and Congratulating the entire team involved in development of this product, NALCO CMD Shri Sridhar Patra said "The collaboration with BARC has resulted in developing this unique product required by our research laboratories. This achievement will inspire the researchers for further innovation and will also add value to the cherished vision of Atmanirbhar Bharat and Make in India Initiative".

Worth mentioning that this new product will act as an import substitution for use by Industries, Research Laboratories and Academic Institutions as a calibration standard in evaluating analytical methods, performance of Instruments, and data quality control in routine analysis of bauxite.

Vedanta's total aluminium production remains flat YoY in Q4



March 31, 2023. The Mumbai-based mining company stated that its total aluminium production for Q4FY23 almost remained flat.

In a regulatory filing, Vedanta said total aluminium production stood 0.3 percent higher at 574 kt in Q4 as compared to 572 kt in the same period last fiscal. It also added that the cast metal aluminium production increased 1 percent quarter-on-quarter with Jharsuguda ramp up.

Moreover, mined metal production rose 2 percent YoY at 301 kt as against 295 kt in March 2022 quarter and 19 percent quarter-on-quarter. Vedanta added that the company witnessed record quarterly mined metal production driven by "higher ore production and improved mined metal grades."



News Update

Technically market is under fresh selling as the market has witnessed a gain in open interest by 6.56% to settle at 3150 while prices are down -0.35 rupees, now Aluminium is getting support at 206.1 and below same could see a test of 204.9 levels, and resistance is now likely to be seen at 208.7, a move above could see prices testing 210.1.

Aluminium producer Norsk Hydro's Q1 core profit falls less than expected

Norsk Hydro posted a sharp fall in first-quarter core profit on Friday as expected, in step with falling metals prices.

Adjusted earnings before interest, taxes, depreciation and amortisation fell to 7.5 billion crowns (\$705.5 million) for January-March from 11.2 billion a year earlier, beating an average analyst forecast of 7.3 billion crowns.

"Lower aluminium and alumina sales prices, and higher raw material costs negatively affected results, partly offset by positive currency effects," Hydro said in a statement. Alumina, produced from bauxite, is the primary material to make aluminium.

Aluminium prices have dropped this year as China has stepped up production, along with concern about a global economic slowdown.

Looking ahead, the aluminium market is expected to be largely balanced in 2023, marked by supply disruptions in and outside China, and there is a risk of further curtailments, Hydro said.

Benchmark aluminium on the London Metal Exchange (LME) has dropped about 12% from a peak of \$2,636 per tonne on Jan. 18, the highest level in 2023, when the ending of COVID-19 restrictions in China raised expectations of a surge in demand.

Alcoa sees output costs easing as aluminium demand stays steady

Alcoa Corp. said lower prices for its metal-making ingredients will help to lower production costs in the second quarter as aluminium demand stays robust.

Earnings will get a boost in the second quarter from "favourable raw materials, volume and lower production costs," the Pittsburgh-based company said in a statement on April 19.

Alcoa reiterated its outlook for 2023 aluminium shipments at between 2.5 million and 2.6 million tons.

Aluminium prices are up just over 2 percent in 2023 as demand for the lightweight metal remained steady in the face of headwinds including higher borrowing rates, fears of China's slow return from COVID-19 lockdowns and growing concerns that economic activity could slow in the United States.

Analysts at Citigroup Inc. have said they expect strong aluminium prices of as high as \$3,000 a ton by year end, or roughly 20 percent higher than current levels. In the first quarter, Alcoa posted an unexpected adjusted loss of 23 cents per share. Analysts had expected a profit of 3.1 cents per share.

Vedanta Aluminium's Odisha project gets ASI Certification

Aluminium Stewardship Initiative (ASI), An industry-led initiative that promotes sustainability in the aluminium value chain, on Thursday announced that Vedanta Aluminium got the ASI Performance Standard certification at its smelter and its captive power plant located within the Special Economic Zone (SEZ) in Odisha's Jharsuguda. The company is the largest producer of primary aluminium in India.

Vedanta Aluminium manufactures and supplies all primary aluminium products in the form of billets, wire rod, primary foundry alloys (PFA), ingot and sow ingot, as well as its 'Restora' brand of low-carbon aluminium products.

The ASI Certification program was developed through an extensive multi-stakeholder consultation process and is the only comprehensive voluntary sustainability standard initiative for the aluminium value chain.

The ASI Performance Standard V2 (2017) defines environmental, social and governance principles and criteria, with the aim to address sustainability issues in the aluminium value chain. It sets out 59 criteria under the three sustainability pillars of Environment, Social, and Governance (ESG), which address key issues such as biodiversity, labour rights, Indigenous People's rights, and greenhouse gas emissions.

Fiona Solomon, Chief Executive Officer at ASI said, "We congratulate Vedanta Aluminium for achieving ASI Performance Standard (V2) Certification at its smelting facility at Jharsuguda. The company is taking steps to decarbonise, including through increased renewable energy consumption, reclaiming aluminium from dross, and other plant-level initiatives. Its Performance Standard certification shows that Vedanta Aluminium is also addressing broader ESG topics."

"Aluminium is a dynamic and rapidly evolving industry with potential for greater applications in a sustainability-conscious world. Aluminium's unique properties make it a crucial metal in the world's energy transition as the backbone of a low-carbon future," said Rahul Sharma, CEO, Vedanta Limited – Aluminium Business.

Vedanta Aluminium deploys IIoT technology in power plant to improve emissions control

Vedanta Aluminium, India's largest producer of aluminium, has augmented its 2400 MW Thermal Power Plant with Industrial Internet of Things (IIoT) devices in fabric filters to improve emissions control. Fabric filters are special bag filters placed after electrostatic precipitators in chimneys to collector particulate matter from the hot gas emanating from the power plant boiler system, stopping them from escaping into the atmosphere. The differential pressure between the bags plays a pivotal role in improving the efficiency of the filters. This is the 3rd line of defense in capturing particulate matter and gases, which significantly



improves the air quality. The company has moved from the traditional way of measuring differential pressure through transmitters to using IIoT devices for precise monitoring and immediate action.

Customised applications of leading-edge technologies across the value-chain are helping Vedanta Aluminium exercise stringent control on operational parameters to bolster ESG (Environmental, Social & Governance) performance. This includes a laser focus on environmental parameters such as energy conservation, carbon reduction, air quality, water sustainability, circular waste management, and biodiversity.

Highlights of the company's sustainability journey include:

- Reduced greenhouse gas (GHG) intensity (Scope 1 + Scope 2) from 19.3 tCO₂e/MT in FY21 to 17.6 tCO₂e/MT in FY22, which is the lowest amongst primary aluminium producers in India
- Launched first low carbon 'green' aluminium from India, branded Restora
- India's largest industrial consumer of renewable energy at 3 Billion Units
- Signed Power Delivery Agreement for 380 MW of renewable power supply to aluminium smelters
- Reduced GHG emissions intensity by 24% in FY 2022, from 2012 baseline
- Commissioned India's largest fleet of lithium-ion battery powered EV forklifts
- Ranked 2nd in Dow Jones Sustainability Index world rankings for the aluminium industry in 2022
- Conserved more than 827 million litres of water in FY22, in the journey towards water positive operations
- Vedanta's subsidiary BALCO was recently awarded the 'PAT Top Performer' award for its efforts towards energy conservation under the Government of India's Perform, Achieve, and Trade (PAT) Scheme
- Vedanta's Smelter-I in Jharsuguda (Odisha) was the national benchmark in water efficiency amongst aluminium producers, with the lowest amount of water consumer per tonne of metal produced in FY22
- All of Vedanta Aluminium's business units have robust Environment Management Systems (EMS) adhering to ISO 14001:2015

Speaking about Vedanta Aluminium's endeavours to bolster ESG excellence, Mr. Rahul Sharma, CEO, Vedanta Limited – Aluminium Business, said, "We are committed to further improving our environmental sustainability performance through a structured approach that includes adoption of best-in-industry practices, leading-edge digital

technologies, consistent improvements in efficiency of resource-intensive processes, circular initiatives and incorporation of 'Design for Sustainability' principles into our operations. In our journey as India's largest aluminium producer and the world's second most sustainable aluminium company, we are striving to emerge as the industry benchmark in operational excellence and environmental performance, as we add value to our customers, communities and country."

Vedanta Aluminium, a business of Vedanta Limited, is India's largest producer of aluminium, manufacturing more than half of India's aluminium i.e., 2.29 million tonnes in FY23. It is a leader in value-added aluminium products that find critical applications in core industries. Vedanta Aluminium ranks 2nd in the Dow Jones Sustainability Index (DJSI) 2022 world rankings for aluminium industry, a reflection of its sustainable development practices. With its world-class aluminium smelters, alumina refinery and power plants in India, the company fulfils its mission of spurring emerging applications of aluminium as the 'Metal of the Future' for a greener tomorrow.

Aluminium towards Industry 4.0: Polytec



By introducing digital technologies and industry 4.0 automation, aluminium producers can record a significant leap in productivity while offering a better control over the production process and customer's reach out. This

approach also provides better safety and environmental sustainability. The combination of digital and automation systems, industrial internet and big data, makes smart factories a reality.

Our mission is to introduce breakthrough technologies that rapidly adapt to new situations and to anticipate the concept of "lean production", while supporting the customer on the path of change towards a continuous improvement culture.

ELECTRICAL EQUIPMENT AND AUTOMATION RETROFITTING

After melting, the semi-finished products undergo other processes including hot rolling to be transformed into flat products and subsequently into coils. Polytec provides automation and control by providing process control technology systems based on real-time platforms.

The cold rolling of aluminium flat strips requires quick, efficient and easy-to-manage controls. Process optimisation to reduce scrap is essential and the basis of our control software. Polytec is able to carry out the entire automation for complete control of the rolling process on roughing and intermediate rolling mills. Stands cylinders regulation and compensation algorithms and reel motors internally, allow to guarantee excellent performances in terms of thickness stability and reaction speed of the



News Update

entire hydraulic AGC system in reaching the target of desired thickness reducing the coils' scraps (heads / tails). Tailored regulation of these processes is essential to meet customer's needs and satisfaction.

An area of production of aluminium products uses extrusion presses and machines to reshape the profile of the extrusions (stretching machines). Polytec is able to supply automation systems based on PLCs complete with software entirely designed in-house, active remote units, supervision and management systems capable of completely controlling the plant from Level 0 up to interfacing with the MES.

SMART ROBOTICS TAILORED TO ALUMINIUM PRODUCTION PROCESS

The automation and electrical equipment upgrade projects carried out for important manufacturers in the sector, have allowed Polytec to deepen the knowledge of the production process and to imagine the integration of robotics, which presence is still scarce in this sector.

In just a few years, Polytec has been able to engineer and commission robotic cells that provide great advantages in terms of workers safety and liability reduction while improving production with solutions that provide error-free product identification, downtime minimisation and overall productivity improvement. The robotic solutions developed resist both environments in which temperatures are high and in the presence of acids, replacing humans in high-risk tasks.

Following the flowchart we engineered multiple solutions, an automatic robot for managing the Plate removal and replacement in the Ceramic Foam Filter can be integrated in the melting area, while numerous robotic solutions for handling, palletizing, marking and tagging are available to be integrated throughout the complete production process (ingots, coil products..).

Specific automatic robots have been engineered and supplied answering customer's critical issues such as strap cutting and removal, coil waste removal from the rolling mill unwinder and for the machine tending for aluminum components.

"Big data" and images collection support producers in the production predictive analysis to better control operations and to improve process management. Machine learning lets machines access data and learn for themselves, to operate independently.

Constellium to provide closed-loop recycling for the all-new Megane E-TECH Electric

Constellium has announced its agreement with Renault Group to establish a closed-loop recycling process for the all-new Megane E-TECH Electric.

Aluminium, lightweight and fully recyclable, is the material of choice for the electrification of the automotive fleet.

Renault Group has developed a closed-loop recycling

process to bring manufacturing scrap from the stamping process directly back to Constellium, resulting in a reduced CO2 footprint. Based on best practices to avoid mixing 5xxx and 6xxx alloys and to compact scrap for optimal logistics at Renault Group, the closed-loop process will recycle these alloys, so that they can be reused in Renault Group's production without any loss of properties, and overall with no downcycling.

For the all-new Megane E-TECH Electric, Constellium supplies the aluminium Auto Body Sheet for outer panels from its Surfalex® product range, combining high strength with excellent surface quality and hemming properties, and for the inner panels from the forming optimised Formalex® product range.

"We are very excited to continue to collaborate with Renault Group on sustainable and efficient aluminium solutions. Together we will contribute to the circular economy within the automotive industry, while also helping both companies to meet their individual sustainability targets," said Hervé Ribes, Director, Technical Customer Service Automotive for Constellium's Packaging & Automotive Rolled Products business unit. "Further, converting R&D expertise to full-scale industrialization is in the DNA of Constellium. This successful collaboration between Renault Group and Constellium proves that it is working."

"We are delighted to expand these activities with Constellium as part of our journey to carbon neutrality, commented Yvan Chastel, Expert Leader for Metals and Processes at Renault Group. "The closed-loop recycling we had first established for the former vehicles manufactured in Douai are now further optimized for the production volumes of the all-new Megane E-TECH Electric. This collaboration further demonstrates our capacity to be at the forefront of decarbonizing mobility by reducing CO2 emissions throughout the life cycle of our vehicles."

Since 2021, Constellium and Renault Group have been working jointly on R&D projects for alloys and solutions that enable closed-loop recycling, such as in the ISA3 collaborative initiative with ESI Group, Institut de Soudure (Welding Institute), and the University of Lorraine.

Earth day inspired 'canvas' installation revealed at covent garden to help encourage recycling

In celebration of Earth Day (Saturday 22nd April), an eye-catching installation has been revealed at Covent Garden to raise awareness around the importance of recycling.

Made up of over 700 drink cans – 'The #EveryCanCounts CANvas' – has been launched by not-for-profit recycling programme, Every Can Counts, in partnership with Covent Garden.

The 'CANvas' has been brought to life by renowned street artist, Jimmy C, with a bespoke Earth Day design to raise



awareness of the infinite recyclability of aluminum and encourage people to recycle their drink cans wherever they are.

The

installation is located on Covent Garden's North Piazza and will remain on display until Tuesday 25th April, when Jimmy C will be returning to paint a new 'CANvas' ahead of the Coronation weekend.

As part of the project, Every Can Counts will also be running a hashtag prize draw where passers-by are invited to post a photo of the installation on social media with the #EveryCanCounts hashtag and tag Every Can Counts on Instagram, Facebook or Twitter for the chance to win a £100 One4All Gift Card.

Chris Latham-Warde, programme manager for Every Can Counts, said: "We're so excited to partner with Covent Garden again and celebrate Earth Day with the reveal of our brand-new 'CANvas' installation.

"Earth Day is all about encouraging worldwide action to help benefit the environment and to preserve the planet, and recycling empty drink cans is something we can all easily do.

"Aluminum is infinitely recyclable, and every empty can could be recycled and back on a shop shelf as a brand-new can in just 60 days. Every can recycled also reduces the carbon footprint of the next can made, so small actions like recycling really do add up to help make a big difference."

Every Can Counts is a unique partnership formed between drink can manufacturers and the wider recycling industry, all with the goal of reaching a 100% recycling rate for drinks cans.

The programme communicates the importance of recycling drink cans and works to make it easier for consumers to recycle their empty cans while they're out-of-home. Its team of ambassadors spread the recycling message and collect cans at many public events throughout the year, and the programme also runs a Green Can Award scheme which recognises the recycling efforts of local businesses, community groups and charities.

LME announces new Interim Chairman of the Board

The London Metal Exchange (LME) has announced that John Williamson, currently LME Non-Executive Director, will become the LME's Interim Chairman, effective 28 April 2023. John will replace Gay Huey Evans CBE, who steps down from the Board at the end of April and whose departure was announced earlier this year.

Commenting on the appointment, Laura M Cha, LME Non-Executive Director, Chair of the LME Search Committee and HKEX Group Chairman said, "John has an exceptionally relevant range of skills and experiences, that together with his in-depth understanding of the LME's market, business and industry, will be instrumental in providing strong leadership to the LME as it executes on its strategy in the months ahead. On behalf of the Board, I would like to thank Gay for her leadership over the last three plus years and wish her the very best for the future."

Commenting on his appointment, John said, "I am delighted to be stepping-up to the role of Interim Chairman of the LME. Recent years have presented challenges for both the industry and the business but, I am certain of the LME's continued role as a vital global marketplace for the pricing and trading of metals. I would like to personally thank Gay for her stewardship and I look forward to working with Matt, my fellow Board directors and the entire LME community as we work together for the advancement of the market as whole, championing transparency, choice and sustainability."

Gay commented, "It has been an honour to serve as the chair of the LME and I would like to thank the Board and management for their support. Working closely with John during my tenure, I believe that he is the most qualified and capable individual to lead the organisation at this critical juncture. I would like to wish him and the entire LME team all the best for the future."

LME Chief Executive, Matthew Chamberlain said, "I am delighted that John will become the LME's Interim Chairman. This is a particularly important time for the LME as we look to the future and seek to support the market and our customers in a dynamic and evolving landscape. John's deep knowledge of our business and his extensive international experience will be invaluable to us as we look to drive forward our two-year programme to strengthen and enhance our markets."

The appointment of Mr Williamson has been through usual regulatory processes.



Indian passenger vehicle sales grew 26.7% in FY23: SIAM data

Passenger vehicles sales in India grew by 26.7% in the fiscal year 2022-23, auto industry body said. As per the latest data of Society of Indian Automobile Manufacturers (SIAM), domestic wholesales of passenger vehicles were at 38,90,114 units, as compared to 30,69,523 units in the previous year.

According to SIAM data, a mix of improved chip supply, higher incomes and pent-up demand, especially for SUVs supported sales at Indian Automaker's despite inflation trending higher through the year.

Besides, domestic wholesales of passenger vehicles grew 4.7 per cent in March at 2,92,030 units as compared to the same month last year. Wholesales of passenger vehicles were at 2,79,525 units in March 2022.

Federation of Automobile Dealers Associations (FADA), earlier this month said that the growth is expected to taper to a low single-digit percentage in the current fiscal, mainly due to inflation, price hikes by carmakers and regulatory changes.

Two-wheeler sales, on the other hand, clocked 12,90,553 units in the domestic market last month, as compared to 11,98,825 units in the year-ago period. Two-wheeler sales rose 16.9% in fiscal year 2022-23, Society of Indian Automobile Manufacturers (SIAM) said.

Total vehicle wholesales last month stood at 16,37,048 units, as compared to 15,10,534 units a year ago, it added.

For the fiscal ended March 31, domestic wholesales of passenger vehicles were at 38,90,114 units, as compared to 30,69,523 units in the previous year.

Two-wheeler wholesales in FY23 were at 1,58,62,087 units, as against 1,35,70,008 units in FY22, SIAM said. Total vehicles wholesales across categories were higher at 2,12,04,162 units in FY23, as against 1,76,17,606

units in FY22, SIAM said.

Total passenger vehicles sales volume saw a growth of 4.5% in March, SIAM data showed.

While commenting on sales data of 2022-23, Mr Vinod Aggarwal, President, SIAM said, "2022-23 has been a year of consolidation, post Covid. The year started again with supply chain disruptions from Ukraine conflict. However, with efficient management of supply chains and better availability of commodities especially for the electronics items, prices have moderated over the year, though it remains a concern. Passenger Vehicle segment posted the highest ever domestic sales surpassing the previous peak in 2018-19. Commercial vehicles posted the 2nd highest domestic sales and is close to the previous peak of 2018-19. In spite of good growth in domestic sales in three-wheelers, they are still below the 2010-11 levels and the Two-Wheelers domestic sales are still below the 2014-15 levels. Favourable Policy initiatives ranging from impact of new PLI Schemes, encouraging announcements in Budget, forward looking Logistic & Foreign Trade Policies and recently announced Gas pricing Guidelines would go a long way in supporting the growth of the Industry."

Commenting on the 2022-23 performance, Mr Rajesh Menon, Director General, SIAM said, "With growth in overall automobile domestic sales of 20% in 2022-23, the industry recorded highest passenger vehicle sales with an annual growth of 27%. Commercial Vehicles and Three-Wheelers posted growth of 34% and 87% respectively, driven by higher off-take of Passenger Carriers. The Two-wheelers segment grew by a moderate 17%, after witnessing de-growth for previous three consecutive years. These segments are yet to reach the pre-pandemic levels."

Quarterly (Jan - Mar) – Q4

Category	Q4-FY18-19	Q4-FY19-20	Q4-FY20-21	Q4-FY21-22	Q4-FY22-23	CAGR %
Passenger Vehicles	844	656	934	921	1,018	4.80
Commercial Vehicles	284	147	210	250	279	-0.46
Three Wheelers	180	130	87	83	154	-3.91
Two Wheelers	4,653	3,503	4,354	3,390	3,605	-6.18

Financial Year (Apr - Mar)

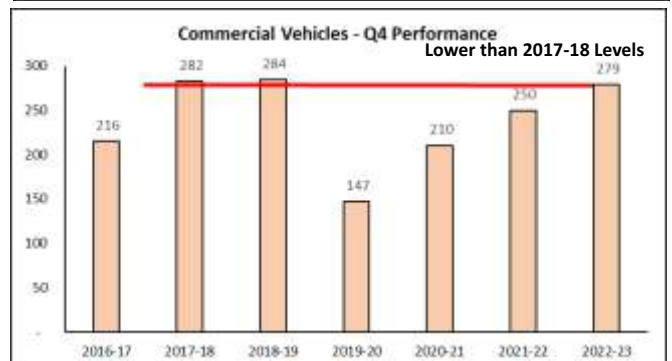
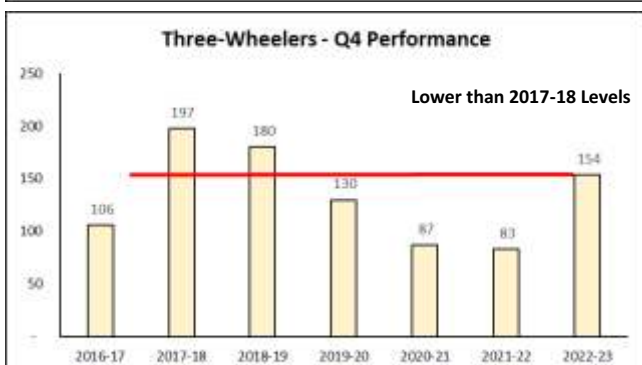
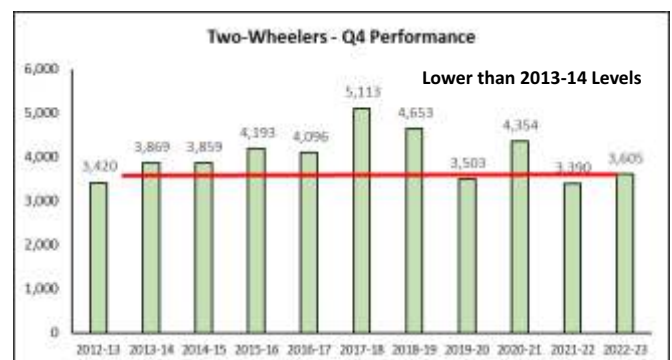
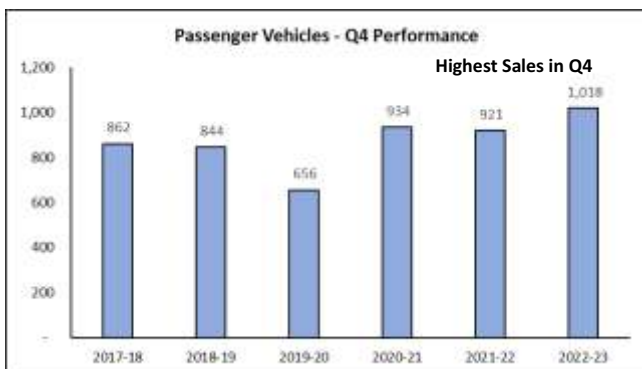
Category	FY-18-19	FY-19-20	FY-20-21	FY-21-22	FY-22-23	CAGR %
Passenger Vehicles	3,377	2,774	2,711	3,070	3,890	3.60
Commercial Vehicles	1,007	718	569	717	962	-1.13
Three Wheelers	701	637	219	261	489	-8.62
Two Wheelers	21,180	17,416	15,121	13,570	15,862	-6.97



Domestic Sales: Monthly

Category Segment/Subsegment	Domestic Sales (In Nos.)	
	March	
	2022	2023
Passenger Vehicles (PVs)*		
Passenger Cars	1,38,014	1,22,133
Utility Vehicles (UVs)	1,32,073	1,57,881
Vans	9,438	12,016
Total Passenger Vehicles (PVs)	2,79,525	2,92,030
Three Wheelers		
Passenger Carrier	21,769	40,131
Goods Carrier	8,901	10,861
E-Rickshaw	1,282	2,718
E-Cart	183	650
Total Three Wheelers	32,135	54,360
Two Wheelers		
Scooter/ Scooterette	3,74,697	4,37,617
Motorcycle/Step-Throughs	7,86,479	8,16,122
Mopeds	37,649	36,814
Total Two Wheelers	11,98,825	12,90,553
Quadricycle	49	105
Grand Total	15,10,534	16,37,048

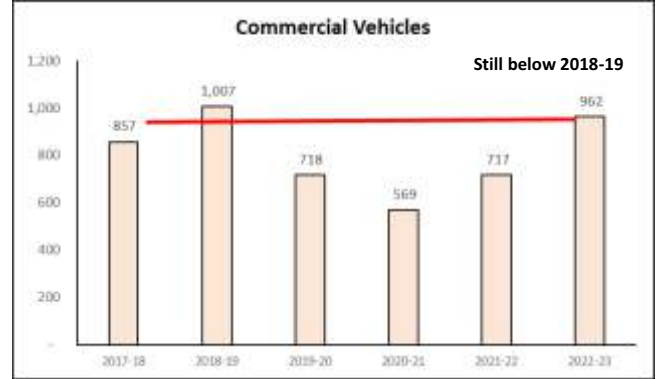
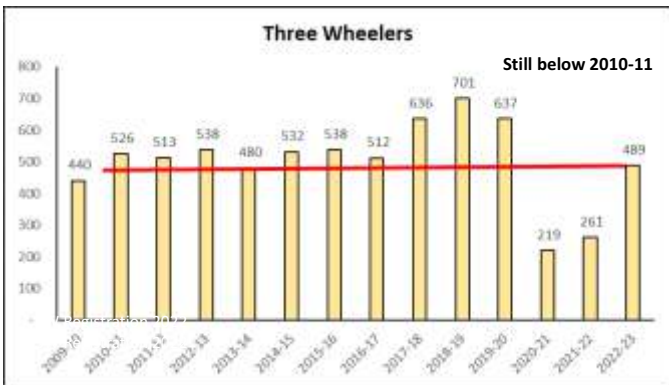
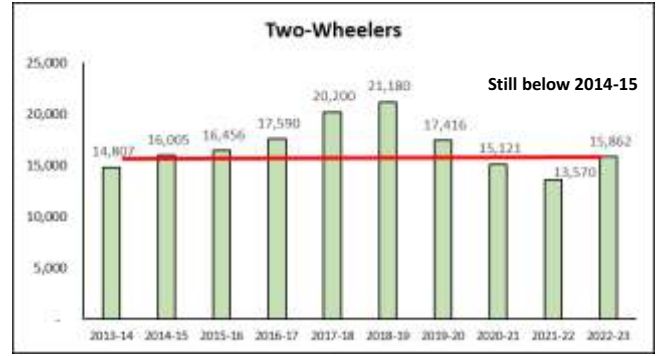
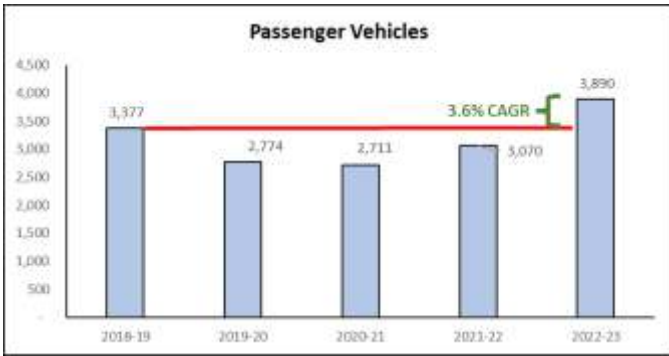
Domestic Sales - Q4 Performance



(Numbers in '000)

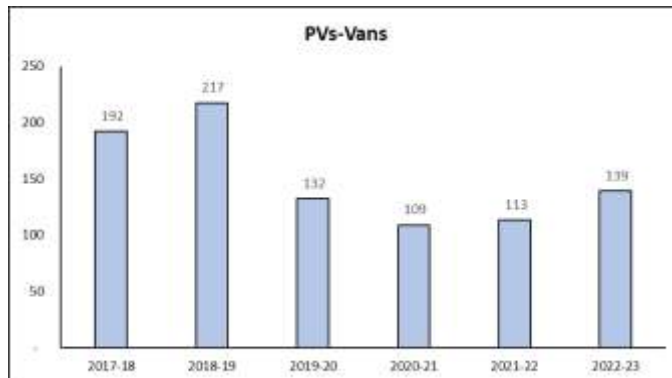
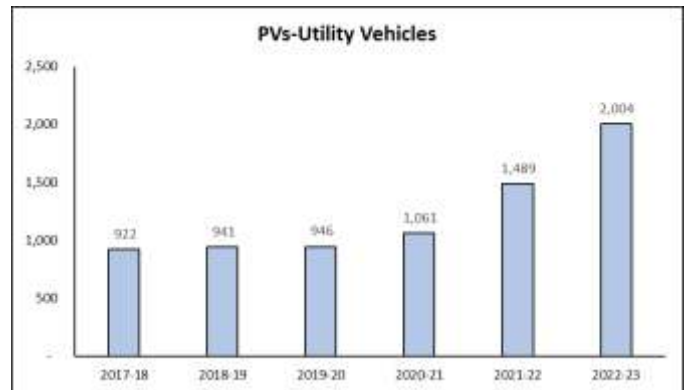
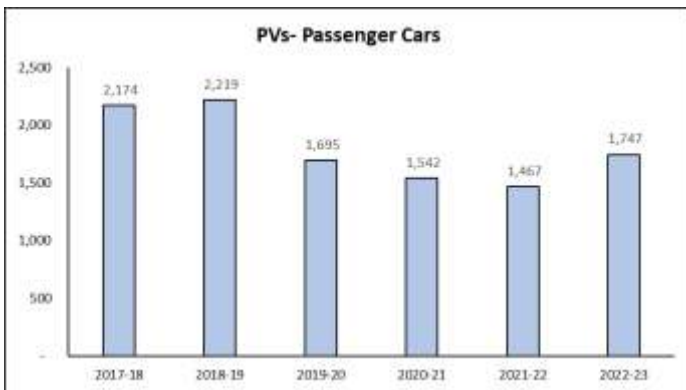


Domestic Sales - Annual Performance



(Numbers in '000)

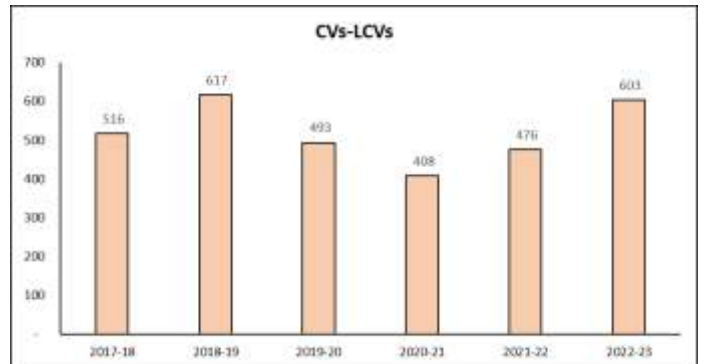
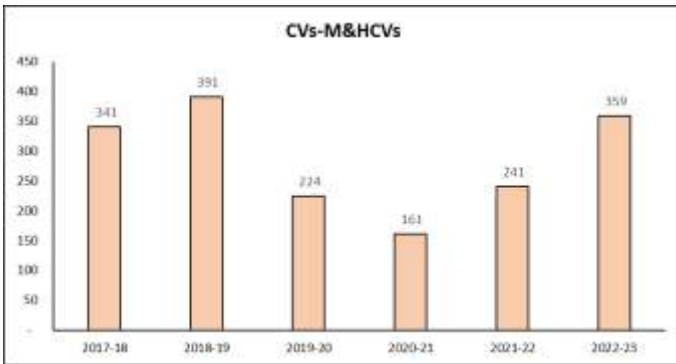
Passenger Vehicles Sub-Category - Annual Performance



(Numbers in '000)

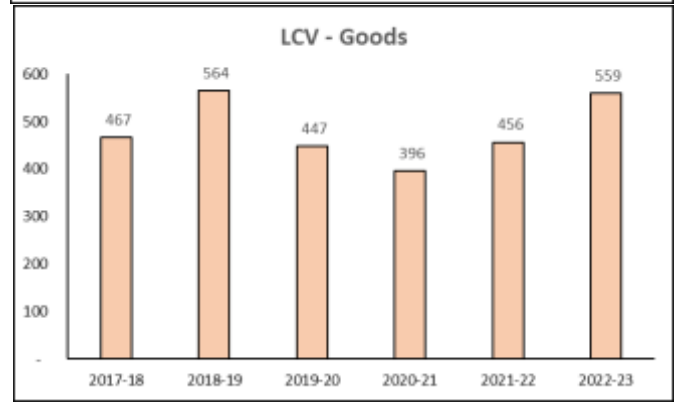
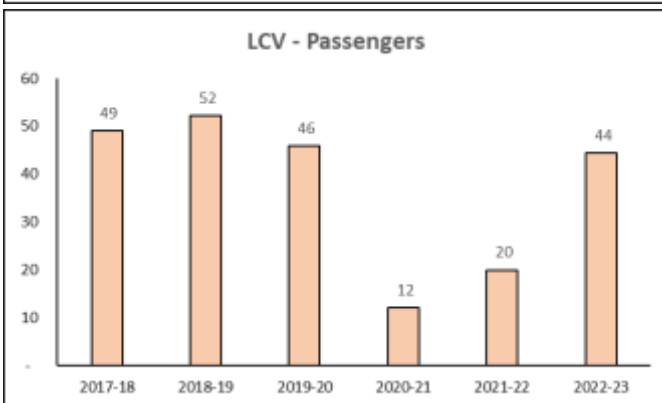
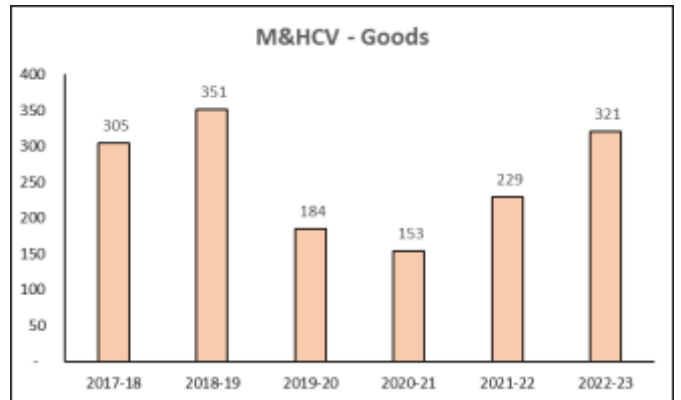
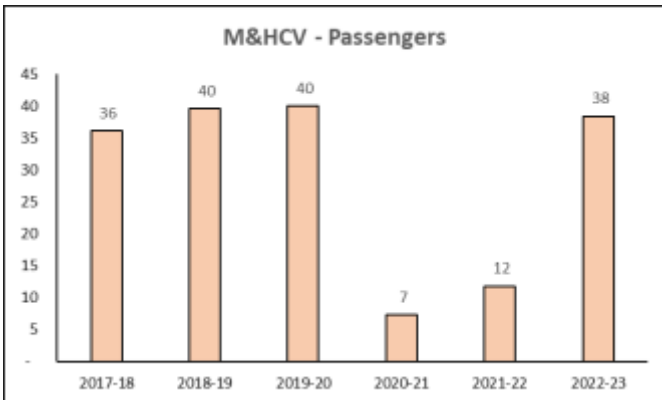


Commercial Vehicles Sub-Category - Annual Performance



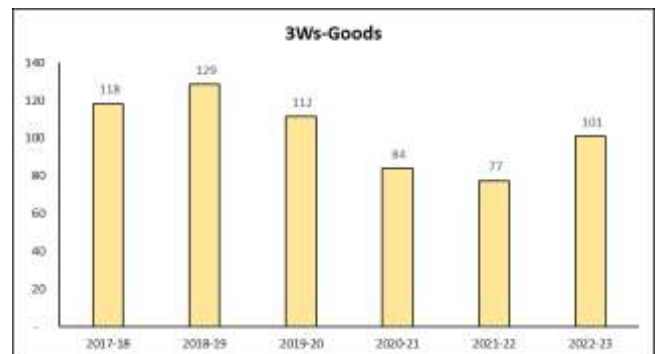
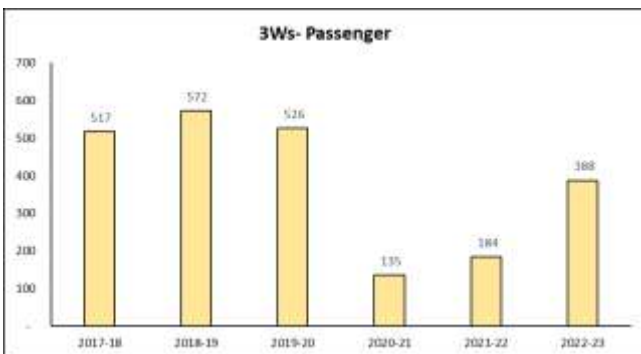
(Numbers in '000)

Commercial Vehicles- Passengers & Goods - Annual Performance



(Numbers in '000)

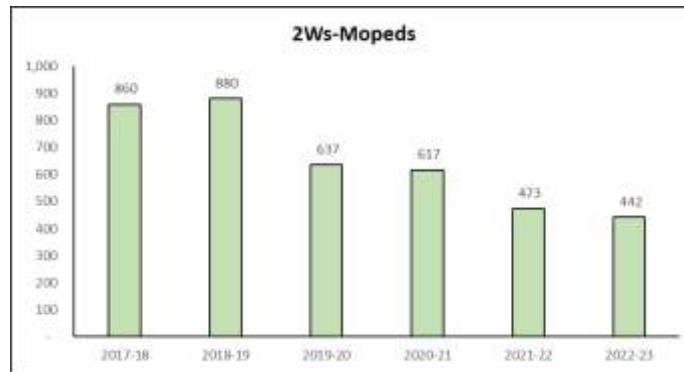
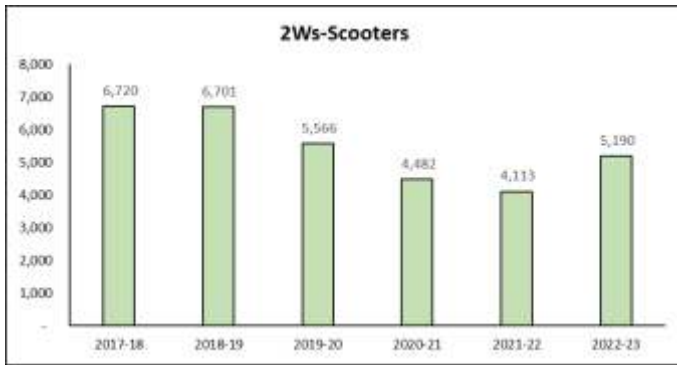
Three Wheelers Passenger & Goods Annual Performance



(Numbers in '000)

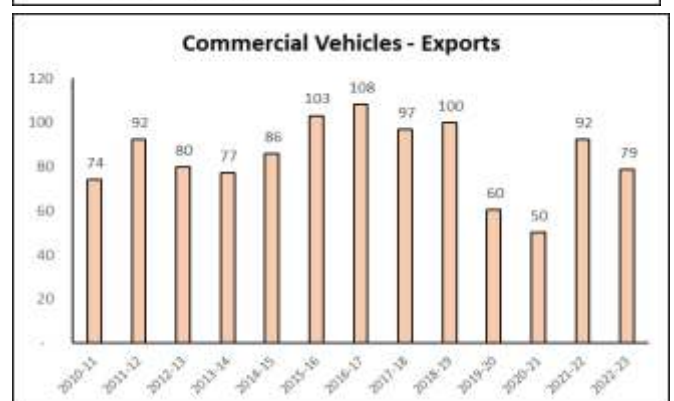
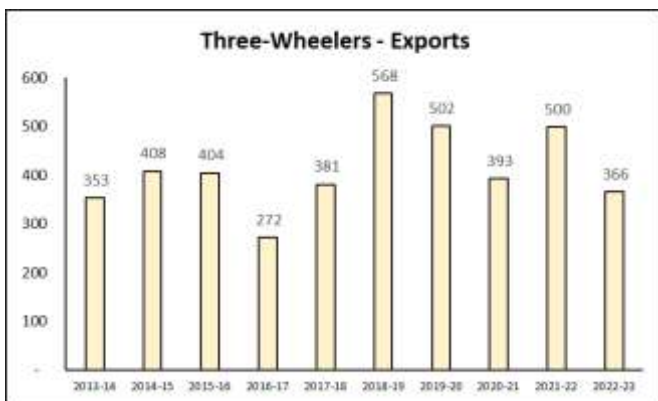
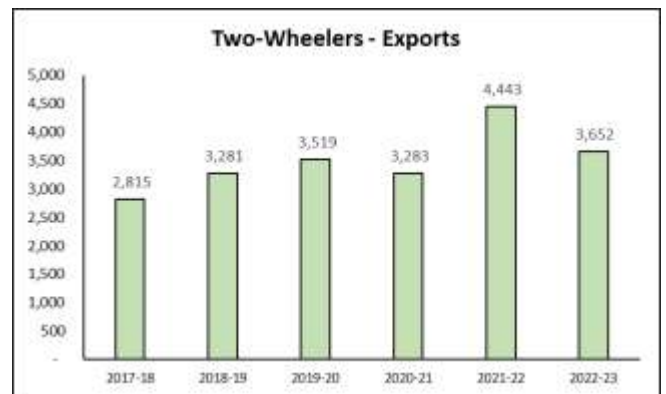
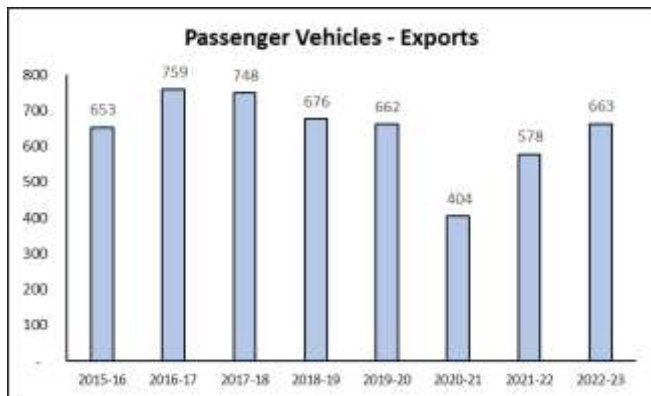


Two Wheelers Sub-Category - Annual Performance



(Numbers in '000)

Annual Export Performance



(Numbers in '000)

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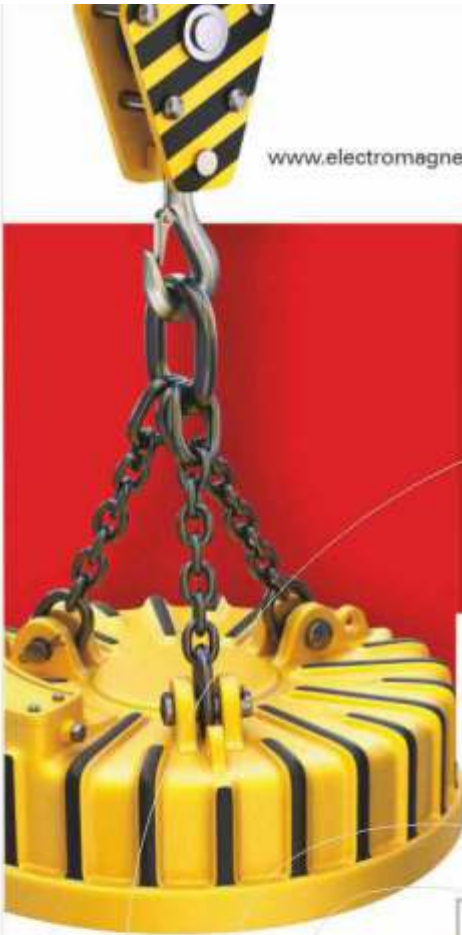


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