

New Delhi, 1 February 2024 - The Bharat Mobility Global Expo 2024 (BMGE 2024), a collaborative effort by key industry players, commenced its three-day global showcase at Pragati Maidan, New Delhi, alongside the debut of the 5th edition of ACMA Automechanika New Delhi. This ambitious initiative, organized by SIAM, ACMA, ATMA, Indian Steel Association, and Nasscom, with support from the Ministries of Commerce and Industry and Heavy Industries, brought together over 500 exhibitors from 13 countries.

**Diverse Exhibits and Collaborations:** The BMGE 2024 explored futuristic vehicle concepts, advanced automotive component technologies, EV battery innovations, alternative powertrains, and urban mobility solutions. The event drew participation from 30 leading OEMs, showcasing the industry's latest innovations and developments.

**Sustainable Transportation in India:** The expo spotlighted India's strides in sustainable transportation, with Prime Minister Narendra Modi set to inaugurate the event. The India Energy Storage Alliance (IESA) curated a dedicated pavilion focusing on battery technologies, recycling, and EV infrastructure, featuring over 60 companies.

**Future Mobility Learning Centre (FMLC):** Recognizing the need for skilled workforce development, the IESA Academy, with support from the International Solar Alliance, launched FMLC during BMGE 2024. The center will conduct training sessions in collaboration with industry entities.

**Three Dedicated Conferences by IESA:** The International Battery Manufacturing, Recycling & Circular Economy Conference will discuss the latest battery industry developments. The Global EV Battery Safety Forum will bring together battery manufacturers and EV OEMs, while the Bharat EV Charging & Battery Swapping Leadership Summit will strategize the growth plan for India's EV infrastructure.

#### Showcasing Innovation Across Vehicle Segments

**Commercial Vehicles:** Ashok Leyland showcased a range of products, including a Hydrogen truck and ADAS features. Volvo Group India displayed its electric prime-mover and multi-axle bus, and VE Commercial Vehicles featured eco-friendly mobility solutions.

**Passenger Cars:** The Honda group showcased its commitment to sustainability and road safety, presenting a flex-fuel powered motorcycle and advanced safety technology in its vehicles. India Yamaha Motor displayed its R15 V4 series, while Maruti Suzuki unveiled the Wagon R Flex Fuel model promoting ethanol-petrol blends.

**Suppliers' Innovations:** Bosch Limited emphasized logistics operations optimization, and ZF showcased TRAXON, an intelligent automated manual transmission.

#### Valuations and outlook

**India: 3rd in global passenger vehicle production, top 2-wheeler market. 210M+ vehicles sold in the last decade. Electric vehicle sales up 49% YoY to 1.53 lakh units. Government support: PLI for autos, advanced chemistry cell manufacturing, FAME scheme. Interim budget allocates INR 26710 Mn for FAME and INR 35000 Mn for autos and components PLI this fiscal year. Expecting a comprehensive budget in the third term in power.**

**We remain positive on the Auto ancillary coverage universe led by EV agnostic products and increase the share of the premium, safety, and comfort content in their product portfolio. Our top picks in Auto ancillary are Alicon Castalloy, Gabriel, Suprajit Engineering, Sandhar technologies, SSWL, SJS Enterprises and Mayur Uniquoters Ltd.**

**Anand Group Unveils EV Innovations**

Tier-1 major Anand Group introduced Anevolve, a subsidiary focusing on green tech and clean mobility solutions. At ACMA Automechanika, it showcased EV components under Anand Mando Electric Mobility (AMEM), targeting the Indian electric two- and three-wheeler segments. Key offerings included mid-drive motors with integrated controllers and alternate magnet materials.

**Anevolve Headspring JV: On- and Off-Board Chargers:** In partnership with Japan's Headspring, Anevolve showcased on- and off-board chargers for EVs. Portable modules (350W to 750W) cater to electric two- and three-wheelers, while 7kW, 11kW, and 22kW AC chargers target passenger vehicles. Anevolve is testing these chargers with plans to supply customers in the coming months.

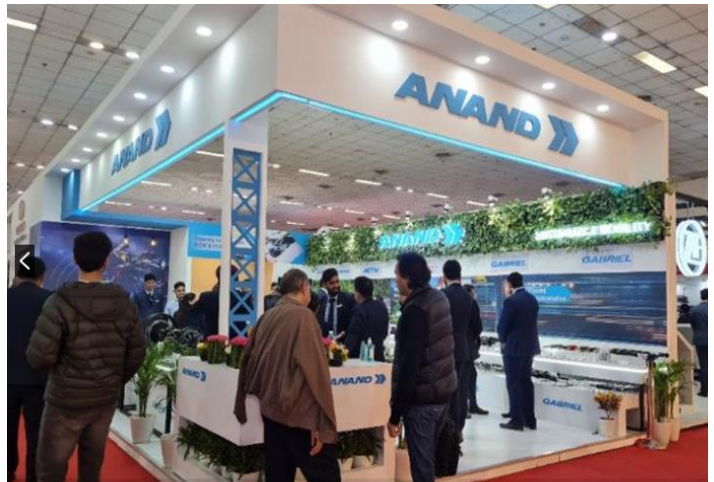
**Lightweighting Solutions for OEMs:** Anand Group presented a range of lightweight functional and structural parts, including two-wheeler swing arms and lower control arms for passenger vehicles. Leveraging composites and carbon fiber, these components enable weight reduction for both ICE and EVs. Despite higher upfront costs, they offer long-term cost benefits, simplified manufacturing processes, and improved range for EVs.

**Anevolve Headspring Engineering Centre in Gurugram:** The company's technology center, Anevolve Headspring Engineering Centre, opened in Gurugram in July 2023, reinforcing its commitment to advancing technology and sustainability in the automotive sector. The center focuses on developing cutting-edge solutions for the evolving mobility landscape.

**Gabriel:**

Gabriel is a market leader in India for ride control products and portfolio includes Front Forks, Seat dampers, Cabin dampers, Dicky shock absorbers, Struts and Shock absorbers. The brands caters to various automobile segments (i.e. 2 & 3 – Wheelers, Passenger Cars, Commercial Vehicles, Railways and Aftermarket).

Gabriel products is manufactured and sold in India by Gabriel India Limited. Gabriel shock absorbers has a significant presence in all automotive channels like OE, after market and exports. Gabriel has an in-house equipment design and development for shocks manufacturing with proven engineering capabilities for products and process



Source: Arihant Research, Company Filings

### Gabriel's Latest Front Fork: Elevating Standards for Export

Gabriel has recently developed an advanced front fork, set to be supplied to Ola. While an earlier version catered to Hero, this new iteration is specifically tailored for export purposes. This signifies Gabriel's commitment to continuous innovation and adapting products to meet the evolving needs of diverse clients, reinforcing its role as a key player in the automotive supply chain.



Source: Arihant Research, Company Filings

### Schaeffler

The company is focusing on the BS-VI portfolio under its brands LuK, INA, and FAG. The company will also put the spotlight on its lubricant and wiper blade product range, under the Schaeffler 'TruPower' brand, and highlight the REXPERT brand's role in offering comprehensive services to garages. Digital touchpoints for customers will also be among Schaeffler's focus aspects at the event, underscoring its dedication to staying ahead in the automotive aftermarket.



Schaeffler introduces a dedicated shock absorber designed exclusively for the aftermarket. This product underscores Schaeffler's commitment to delivering top-notch aftermarket solutions.

### Schaeffler's Comprehensive Automotive Expertise: A Commitment to Durability and Customer Satisfaction

Beyond their primary product offerings, Schaeffler exhibits an extensive grasp of engine, transmission, and chassis systems, empowering workshops to excel in intricate repair tasks. The company's success is fueled by a proactive approach to understanding customer requirements, as demonstrated in their response to the BSVI regulations.

In addressing the BSVI standards, Schaeffler introduced serviceable clutches, not merely as a compliance measure but as a strategic move to enhance performance. This innovative step not only aligned with the new regulations but also effectively doubled the lifespan of clutches. The result is a creation of substantial value for end-users, showcasing Schaeffler's commitment to delivering solutions that not only meet industry standards but also exceed customer expectations. This customer-centric approach solidifies Schaeffler's position as a driving force in the automotive solutions sector.



Source: Arihant Research, Company Filings

## Schaeffler

**Advancements in Transmission Systems and Chassis Components:** Product portfolio encompasses various models under transmission, ranging from basic systems to advanced ones. These include the transmission system, clutch, and clutch systems. Notably, company offer diverse transmission products, ranging from simple clutches to sophisticated DMF (dual mass flywheel) and advanced two-city double 2H transmissions. The latter exhibits high-end technology, featuring self-adjusting mechanisms and superior strength.

As seasoned players in the industry, company has a significant presence in transmission technologies, particularly in the area of view bearings falling under the chassis category. These products primarily find application in wheel systems, ranging from basic bearings to sensor-based solutions like Lotus ABS. The distinction lies in the complexity of these components, with variations such as Gen. 1 for simple connections and advanced versions ensuring proper wheel alignment. Moreover, the product line extends to third-generation algorithms, catering to both ABS and non-ABS configurations. This includes sophisticated encryption mechanisms to enhance performance. As part of the commitment to innovation, the company is actively supplying E axles to Tata Motors, contributing to the evolution of automotive technologies.

### Premium Excellence: Supplier Delivers High-End Products to BMW

A prestigious supplier is providing high-end products exclusively to BMW, emphasizing a commitment to delivering top-tier components for luxury vehicles. This collaboration underscores the supplier's dedication to quality and precision, meeting the stringent standards set by a renowned automotive brand like BMW.



Source: Aриhant Research, Company Filings

**Outlook:** Schaeffler India is expected to grow at double-digit rates over the next 3 to 5 years. Exports business is expected to pick up and expected to be 15%-20% of sales. The capex of INR 15bn would bring additional revenue going forward. The localization would bring margin improvement and new launches will drive growth going forward.

### Gabriel's Latest Front Fork: Elevating Standards for Export

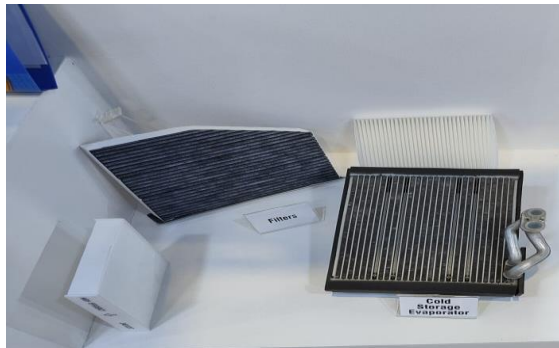
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Source: Aриhant Research, Company Filings

**Outlook:** Gabriel's sunroof division is poised for growth, with a focus on import substitution and localization for models like the Hyundai Creta and Kia EV. Production capacity is expected to ramp up significantly by FY26, with projections nearing 2 lakh units, contingent on OEM volumes. The company anticipates sustained growth in the two-wheeler industry, aiming for double digit revenue growth in FY25. We expect Gabriel's revenue, EBITDA, and PAT to grow at a CAGR of 15.0%, 24.2%, and 26.9%, respectively, over FY24-FY26E. We used DCF model to arrive at a target price of INR 449 per share.

### Subros: Auto Air-conditioning Systems



Three categories where AC is made mandatory from June 25 the engagement with customers are on and company is almost finalizing the specification for product development and soon will be announcing the final result of the negotiation for these AC application. We believe that most of the positive developments are already priced in, and going forward, we anticipate traction from H1FY25, driven by increasing demand. Targeting 10% EBITDA margin, 27% gross margin, and improved PV (AC) business share. Government initiative includes AC cabins and more coaches for Indian Railways, Vande Bharat, and Amrit Bharat. Aiming for 30-35% market share, with expected revenue of 750-1000 Mn.

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### Uno Minda

The company sees seating biz soar 3-4x in few years, eyes INR 30000-40000 Mn in revenue  
**Uno Minda's Seating Division Eyes Exponential Growth**

- Seating division currently constitutes 8–9% of annual revenue (INR 10000 Mn).
- Sunil Bohra, CFO and CEO of Safety & Comfort Systems Domain, anticipates a 3–4x increase in the next 6-7 years.
- Merger with Harita Seating Systems in April 2021 boosted Uno Minda's portfolio with prestigious clients like TVS, Royal Enfield, TAFE, Daimler, John Deere, and Tata.
- Ambitious plan to double Harita's revenue within five years exceeded expectations, now eyeing the goal within 3.5–4 years.
- Uno Minda aims to expand in the passenger car segment and enters a joint venture with TACHI-S to manufacture seat recliners for four-wheeler passenger vehicles in India.
- Uno Minda holds a majority stake (51%) in the joint venture.
- Group Chairman, Nirmal K Minda, targets more than 30% MS in any segment within three years, emphasizing a focus on emerging technologies and localization.



**Uno Minda is actively competing with India Nippon Electric in the lighting aftermarket sector.**

Source: Arianth Research, Company Filings

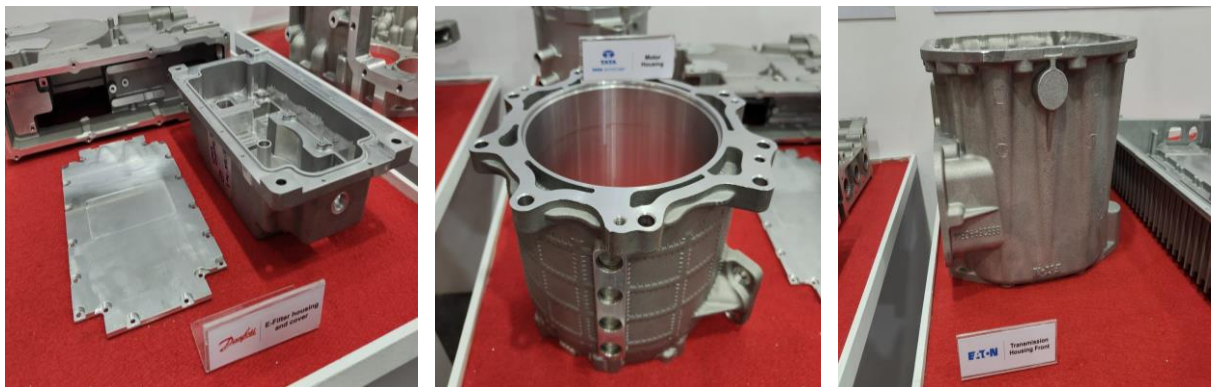
The Indian automotive aftermarket is poised for substantial growth, with research from the Automotive Component Manufacturers Association of India and EY indicating an expected increase from the current USD 10 bn in 2023 to USD 14 bn by 2028. This positive outlook is underpinned by a steady rise in the number of vehicles, projected to experience a CAGR exceeding 8% in the next five years. With the current vehicle count standing at 340 mn units, the Indian automotive aftermarket presents a promising landscape for sustained expansion and development.

### Alicon Castalloy

#### Leading in Lightweight Alloy Castings

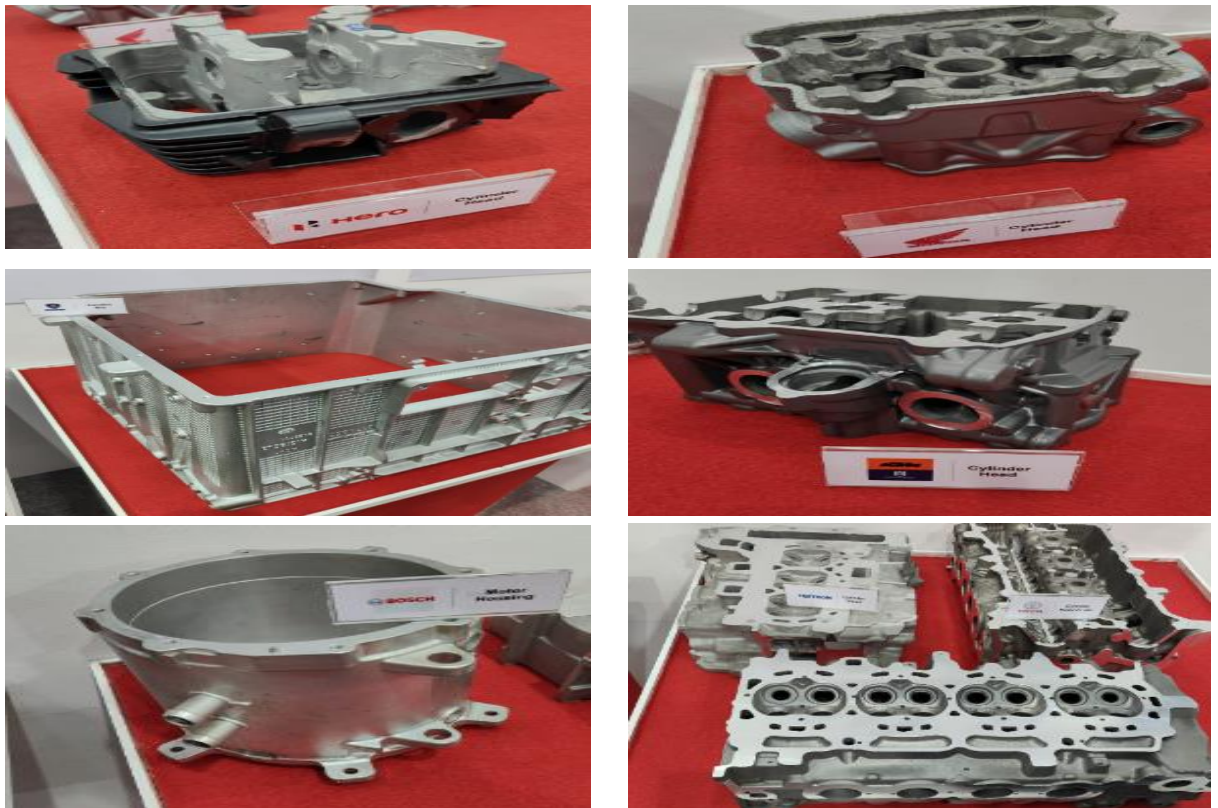
Alicon Castalloy stands as a global leader in lightweight alloy castings, forging impactful partnerships with renowned Global OEMs and Tier 1 Suppliers. Collaborations include industry giants like Jaguar Land Rover, Daimler, Samsung SDI, and MAHLE. The company's expertise in delivering high-quality lightweight alloy castings has positioned it as a key player in the global automotive supply chain, serving prominent names in the industry.

In the carbon-neutral business, an additional component from Danfoss has been introduced for the European market, alongside securing a prototype business order from JLR to support the previously awarded eAxle series business. **The company is generating 1000 Mn per month in this segment.**



Source: Arihant Research, Company Filings

#### Cylinder Head





Source: Arihant Research, Company Filings

The Company is exploring friction stir welding which is a highly recommended application in the area of EV for strong and high-quality joints. This focus on technology based solutions aids in establishing differentiation across the global landscape. The Company is also actively working towards increasing sustainability footprint and has commissioned captive solar plant in India while installation of solar panels at the facility in Europe will be completed this year. These initiatives will meaningfully transform the energy mix.

**Friction Stir Welding emerges as a robust process for new EVs, witnessing substantial investment from OEMs and Tier-1 suppliers amid the electrification trend. Anticipating increased order bookings and volume growth with existing customers in the coming quarter, the company is experiencing strong traction in this field.**

**Outlook: We believe strong traction across the geography is driven by strong demand from the OEMs, which has led the management to maintain its revenue growth guidance 13%-14% overall revenue growth in FY24, targeting revenue over INR 22000 Mn by FY25-26 with a CAGR surpassing 16% over the next 3 years, transitioning from small to larger and critical parts. Alicon is expected to benefit from its established market position in the aluminium casting auto component sector, driven by established client relationships and operations in India, Austria, and Slovakia. The company is expected to benefit from the strong growth prospects of its key clients such as JLR, Daimler, Ferrari and Maruti Suzuki**

Rockman Industries Ltd



Source: Arihant Research, Company Filings

Rockman Industries was established in the year 1960 as a bicycle component manufacturer. The company is an industry leader for Aluminium die casting, machined and painted assemblies supplier. Rockman Industries supply these components to renowned motorcycle manufacturers and automobile OEMs across the world.

The organization is an industry leader in two-wheeler and four-wheeler alloy wheels. Apart from wheels, the organization also manufactures cylinder head, cylinder block, crank case, crank case covers, oil pan, transmission housing and other mechanical components.

Clients-OEMs



## Suprajit Engineering Ltd



Speedo Meter with Info



Source: Aриhant Research, Company Filings

#### Cluster & Brake Parts is in the advance discussion with TVS Motors

Domestic cable division saw strong growth, especially in the passenger vehicle business. Phoenix Lamps division experienced consistent margin improvement and successful restructuring efforts. Suprajit Controls Division faced challenges primarily due to global market conditions, operational challenges, and changes in product mix. Efforts towards long-term restructuring are underway, including cost optimization and relocation of low-margin businesses.

**Suprajit Technology Center (STC):** STC has won multiple braking contracts with Indian and Japanese 2W OEMs and a prominent EV OEM. Ongoing plans for a larger premises in Bangalore to accommodate growing technology teams.

**Suprajit Cable Division:** Observed a decent improvement in margins, attributed to operational improvements and restructuring efforts. Operational efficiency initiatives, such as consolidating warehouses and moving certain businesses, have contributed to margin enhancement. The division anticipates double-digit business growth going forward, even with global markets expected to remain flat.

**Margin recovery in the SCG (Suprajit Controls Group) division** has been noted, driven by new order wins and sustained double-digit margins. Margins have remained strong due to business performance and growth despite challenges such as the Red Sea crisis and increased freight costs.

**Outlook and Valuation:** Positive outlook for Q4, with strong performance in the DCD, PLD, and electronics divisions. The company is focusing on strategic initiatives to improve performance and capitalize on growth opportunities in both domestic and international markets. The company's focus on manufacturing excellence, coupled with product differentiation and market demand, is expected to support sustained margins across divisions. Overall, despite challenges such as the Red Sea crisis and the UAW strike, the company has demonstrated resilience and maintained strong margins. We expect Suprajit's revenue, EBITDA, and PAT to grow at a CAGR of 10.3%, 16.4%, and 27.3%, respectively, over FY24-FY26E. We used DCF model to arrive at a target price of INR 467 per share. We have a BUY rating on the stock.



**Sona Blw Precision Forgings Ltd**



Spool Gears-EV, Intermediate Gears & Input/Rotor Shaft

The prospects for the light vehicle markets in North America (NA) and the European Union (EU) appear promising, as major OEMs concentrate on the electrification of vehicles. In NA, favorable tax rebates are expected to drive the adoption of EVs. In contrast, the Indian market presents a mixed scenario, with CVs anticipated to decline due to the election year and weakness in the off-highway segment. However, PVs are projected to remain stable. The current impact of the Red Sea crisis is minimal, but it could result in increased inventories and longer delivery times for NA and EU customers.

Q3FY24, Battery Electric Vehicles (BEVs) contributed 30% of the revenue, showing a 28% YoY growth, amounting to INR 2.2 bn. The company added five new EV programs, including two new EV customers, and introduced a new product called the Integrated Motor Controller. This product, designed for e-2W OEMs, boasts a compact design and an improved thermal management system, enhancing electric powertrains.

**After facing challenges in FY23, SONACOMS is now firmly back on a growth trajectory, driven by the recovery in underlying markets and a robust order book. The company remains a reliable indicator of the global electrification trend, with approximately 30% of its revenue coming from EVs and a significant 79% representation in the order book. Additionally, SONACOMS' strategic focus on expanding its product portfolio, global scale, and cultivating a diverse customer base positions it for strong earnings growth and healthy capital efficiency.**

**Greaves Cotton**

**Expanding in India and selectively establishing in chosen geographies**



Strategic shift towards a fuel-agnostic product range, expanded global presence, and entry into new industry segments reflect the commitment to innovation and growth. Augmenting the Mechanical Engineering with Mechatronics and Electronics is accelerating the integration of electronic sensor-based controls from Excel Control linkage.

**Outlook & Valuation:** We believe in strong traction in e-mobility. Further, management is strategically looking to expand both in the B2B and B2C businesses and is looking to play on multiple price points in the E2W space, as the company is expected to expand its E2W portfolio. Successful performances in traditional and e-mobility businesses, coupled with robust profitability and strategic shifts at Greaves Retail, reinforce the trajectory for sustained growth. Despite challenges like the absence of PLI benefits, our prudent financial management, and the positive effects of the softening commodity cycle contribute to the company's stability and resilience. However, the recent subsidy removal, leading to increased vehicle prices, raises immediate concerns about the short-term impact. The company remains committed to launching new products and variants, anticipating sustained profitable growth in the upcoming quarters. We have valued the standalone business at 5x its EBITDA of INR 3,702 Mn, Ampere's business at FY26E P/sales at 1.5x, yielding INR 71 per share and Excel Controlinkage business at FY26E P/sales at 1.5x, yielding INR 1.9. Our SOTP valuation yields a fair value of INR 192 per share. We have a Accumulate rating on the stock.

Report link: <https://bit.ly/3I2nTIP>

#### Varroc Engineering Ltd-Polymer segments



**Polymer Product**

The company is actively engaged in lightweighting initiatives, aiming to replace bulky sheet metal components with polymers and incorporate lightweight micro-cellular polymers and composites in trims and various body parts. The company focus extends to pioneering technologies such as 2K molding, allowing the simultaneous injection of two materials, the implementation of 3i technology for achieving high-gloss paint finishes with reduced wall thickness, and the development of battery protection systems for electric vehicles.

Ultimate goal is to set a new standard in the automotive industry by achieving exceptional design and profitability through vehicle lightweighting. Additionally, our recent acquisition of Team Concepts Pvt. Ltd. in Bangalore marks the entry into the genuine vehicle accessories segment, demonstrating the commitment to anticipating and meeting the evolving needs of the industry. We prioritize Quality, Cost, Delivery, and Differentiation to deliver innovative solutions and establish ourselves as leaders in the field.

**Debt stood** INR 10,623 Mn against 10,064 due to investments in renewable energy projects, final instalment payment towards divestment-related expenses, temporary increase in working capital and arbitration costs related to China JV.

**Capex:** Spent about INR 1250 Mn in the 9MFY24, expecting year-end expenditures for India and overseas operations to reach around INR 1800 Mn by FY24-25. Pricing was increased retroactively. Pricing enabled the company to show a decent profit.

**Outlook:** Right capital allocation, sweating of assets, Commercialization of the R&D efforts and control on cost remains the focus of the company. Mass production of Traction Motors, Controllers & Telematics shows the capability of the team to industrialize first time right a new product. Overall, we believe that the company is investing in electrical, EV components, and automation front which is going to help to enhance growth going forward. Q4FY24 industry outlook is promising, potentially positively impacting the company's performance. We will observe while the company navigate through the performance in the coming quarters. we are cautiously optimistic on the company to deliver strong performance.

## Battrix Kabra Extrusion

### Battrix Unveils Innovative High Voltage Packs

Battrix is set to launch a diverse range of High Voltage packs for Passenger Cars, LCVs, Buses, Trucks, E-tractors, and off-road applications. Notably, they introduce India's first High Voltage liquid-cooled battery pack for agriculture. The lineup features advanced cell chemistries (LFP, NMC, NCA) and various form factors (Cylindrical and Prismatic). This highlights Battrix's commitment to pioneering energy solutions across multiple sectors.

### Battrix Unveils Cutting-Edge Solutions at Bharat Mobility Expo 2024

At the Bharat Mobility Expo 2024, Battrix showcased its in-house Battery Management System (BMS) for 2W and high voltage applications, IoT solutions, and a Swapping Station. The Swapping Station, with cloud connectivity and adaptive voltage support, provided a seamless experience for users. Mr. Anand Kabra, Vice-Chairman & MD of Kabra ExtrusionTechnik Ltd., expressed excitement about presenting groundbreaking innovations, aiming to redefine electric mobility standards. Battrix invited industry leaders, enthusiasts, and media to witness the future of electric mobility at their booth during the expo.

**Outlook: The company doesn't want to enter cell manufacturing or battery swapping (battery swapping is capital intensive). India can go for sodium batteries instead of lithium batteries. Earlier expectations were of electric 2-wheeler sales to double in the FY but doesn't seem possible due to withdrawal of FAME subsidy. Although company is positive on strong movement during the Q4FY24. The company is also exploring export opportunities.**



Source: Arihant Research, Company Filings

## NRB Bearings

Global bearing market to receive a boost from product development and increased sales of hybrid and electric vehicles (EVs). Special bearings for hybrid and EVs aim to enhance efficiency, operability, and shelf life. Company's focus on R&D expansion and capacity increase in Thailand subsidiary progressing well. NRB reports that 100% of its export output is for hybrid and e-drive vehicles, with a higher proportion than any other Indian bearing company. Despite challenges like the Russia-Ukraine conflict, the company anticipates stable and expanding demand in Europe and America, expecting exports to outpace the domestic market growth.



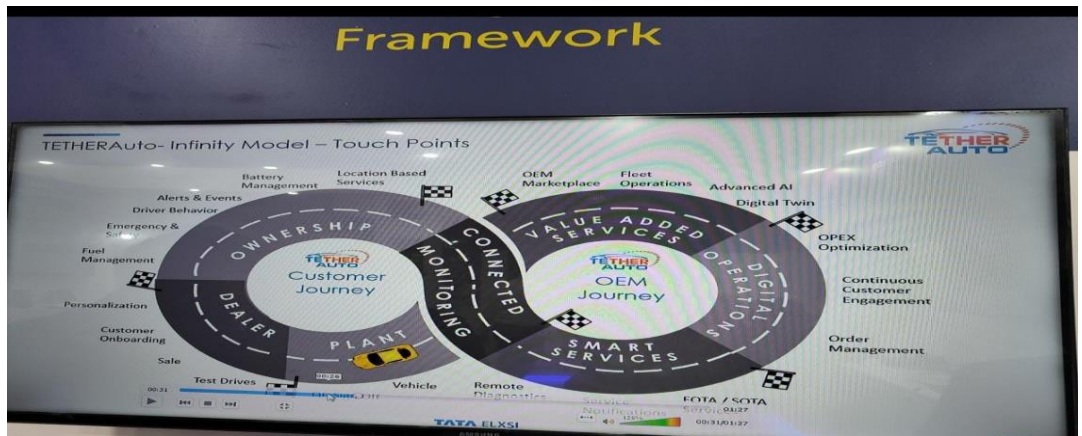
Source: Arihant Research, Company Filings

**Outlook: We believe that NRB is strongly positioned to benefit from growing demand in both domestic and export Markets. Even discounting the fact that it has one segment exposure unlike other bearings companies, the stock still remains undervalued and look attractive considering the multiple growth drivers**

IT in EV

Tata Elxsi

The automotive industry is undergoing a revolutionary transformation, driven by advanced technology that is reshaping vehicles and the way everyone think about mobility. As Tata elxsi stand at this exciting juncture, it's clear that while challenges abound, the opportunities are even greater. At the forefront of this evolution is Bharat Mobility Expo, where they are thrilled to present the innovative solutions and services that are defining the future of transportation.



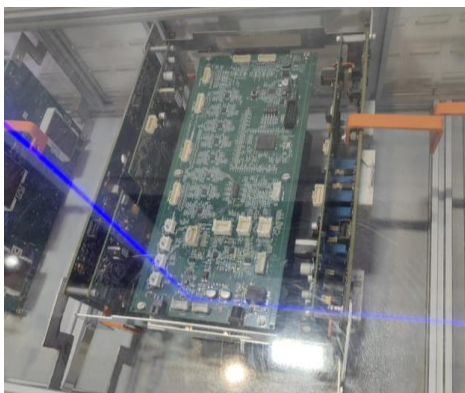
EV Solutions

The landscape of EV technology and product development is rapidly changing. Tata Elxsi supports accelerated Electric Vehicle adoption through a sustainable service framework of software, hardware, mechanical, and cloud for various subsystems like BMS, Motor controls, Fuel cells and much more.

Software-Defined Vehicle Solutions

SDV enables a platform or a mechanism for OEMs to get continuous revenues. Tata Elxsi is involved in programs with OEMs and Tier-1s, contributing to how SDVs will be part of OEMs' roadmaps in the coming years, and they bring the right frameworks for faster development and deployment ecosystem for in-vehicle and cloud enablement.

L&T Technology Services



Source: Arihant Research, Company Filings

Clients BMW ,Honda, Ford & GM

Fast charging is critical to the success and future of global vehicle electrification initiatives. Esteemed customer wanted to design and develop a DC fast grid charger that is highly efficient, modular, and scalable to accomplish ultra-fast charging without compromising overall system efficiency.

Power electronics and vehicle electrification experts developed a DC fast grid charger with an output range of 40 kW to 60 kW. The modular architecture design approach implemented by LTTTS experts enabled the charger for being stacked in parallel and series combinations to generate a power range of 200 to 300 kW.

Benefits Delivered

- The developed DC fast Charger is modular and scalable that can be scaled as per end-customer requirements
- The interoperability of the DC fast charger with any controller made it a suitable fit for any automotive OEM around the globe.
- ~ 30% reduction in Time-to-Market achieved
- ~ 60-70% re-usability achieved through modular & compatible design and costs were optimized.

## KPIT-AR/VR/XRS

### SDV Test Approach - Virtual to Real Validation

- E/E Architecture
- Network
- Functional Domain
- Platform
- Vehicle System Integration
- XR based virtual reality and virtual prototyping for Vehicle Engineering & Design:
- Virtual Simulation of Zonal Wiring Harness
- Virtual Cockpit Experience
- Virtual System Assembly



- Hardware prototypes during the architectural Proof of Concept (POC) phase to reduce risks
- End-to-end data flow validation across Ethernet, CAN – Communication between Software contexts across HPC, Zonal and Nodes
- End-to-end time sensitive network testing

## Auto Ancillary Industry

The Indian auto-component industry saw a significant 32.8% growth, reaching INR 5.6 trillion in FY24, attributed to strong vehicle sales, thriving aftermarket, and exports. Exports increased by 5.2%, but imports grew slightly higher by 10.9%. The aftermarket segment grew by 15%, and sales to OEMs in the domestic market rose by 39.5%. Despite pandemic challenges, vehicle sales rebounded, and the industry is expected to perform well in FY2024, boosting optimism for the auto components sector.

### Aluminium light-weighting market

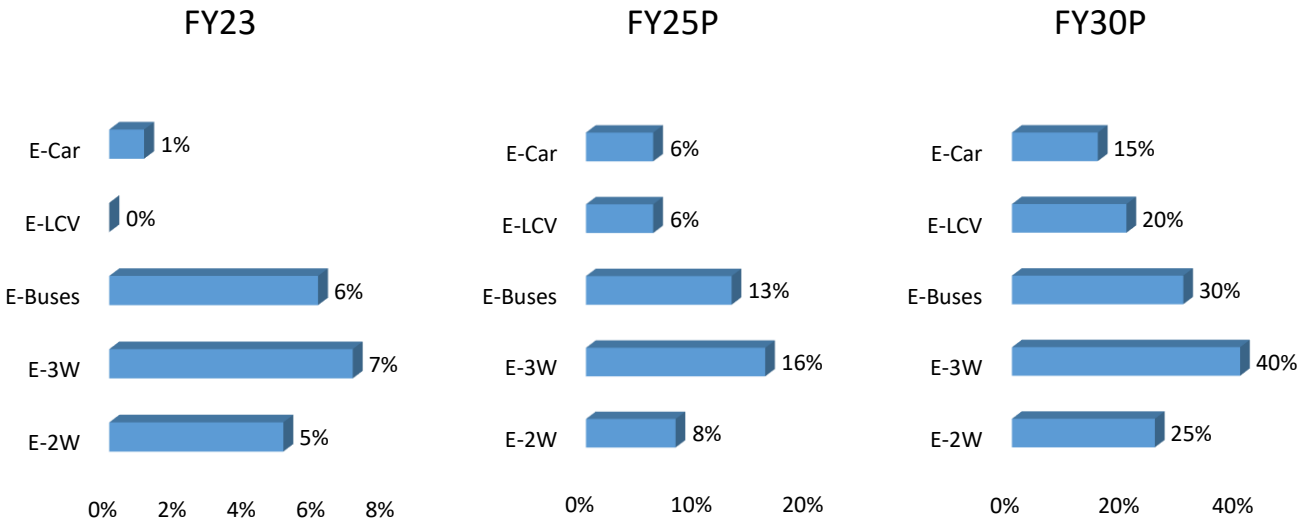
The aluminum light-weighting solutions segment is divided into engine, body/chassis, transmission, electrical/electronic, and EV-specific components. The domestic market for these precision solutions is estimated at INR 80bn in 2022, projected to grow at a 13.2% CAGR to INR 149bn by 2027. Engine parts are the largest category, but with the shift to EVs, engine parts may see slow growth, while electrical and electronic components and body/chassis parts are expected to grow. In EV 2Ws, new components may increase aluminum content by 30-50% in weight but more than double in value due to complexity and a greater number of parts.

### Cables Market

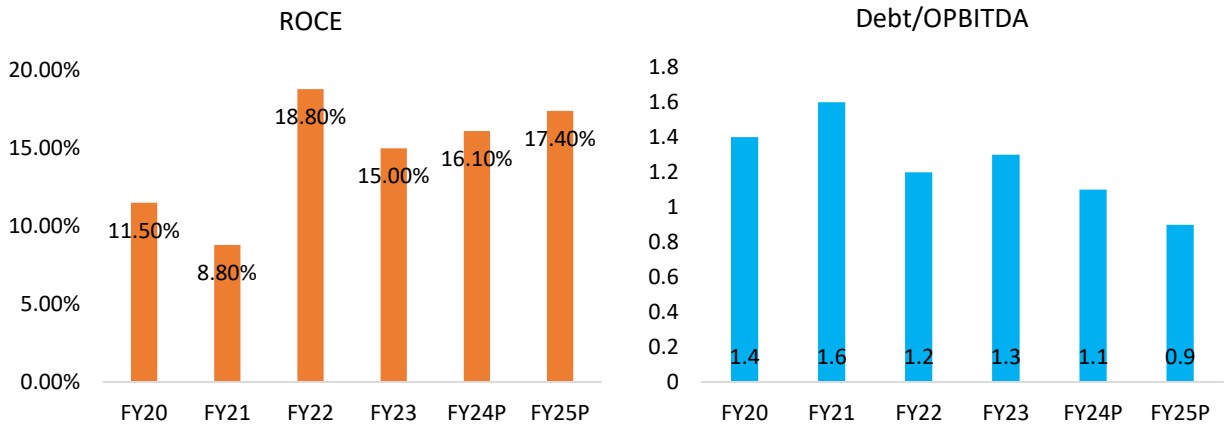
The safety control cable solutions market is valued at INR 18bn in 2022, projected to reach INR 26bn by 2027, with a 7.1% CAGR. The aftermarket dominates, but the OEM segment is expected to grow faster. Increasing EV adoption is reducing cable usage in two-wheelers for engine operations. The key driver for the cable market in the medium to long term is the larger fleet of vehicles in the parc. Leading players include Suprajit Engineering Ltd, Ramson Industries, ASK Automotive Limited, and Hi-LEX.

***ICRA expects the auto component industry's revenue to grow at 9-11% in FY24 and 5-7% in FY25. While demand is expected to remain stable, increasing premiumization, changes in regulatory norms and higher localization resulting in higher content per vehicle, will also translate into growth for auto component suppliers.***

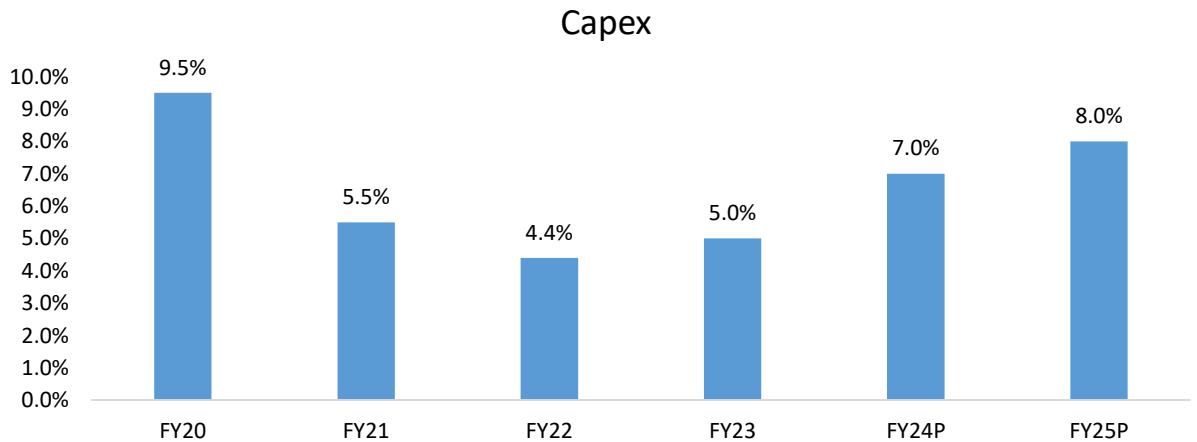
Penetration across segment to increase exponentially



Coverage Indicators to remain comfortable across auto ancillary



Capex (as % of sales) for large auto ancillaries



Source: Arianth Research, Company Filings

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Stock Rating Scale	Absolute Return
BUY	>20%
ACCUMULATE	12% to 20%
HOLD	5% to 12%
NEUTRAL	-5% to 5%
REDUCE	-5% to -12%
SELL	<-12%

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