



# In celebration of years of technological pioneering



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**Kiran Manohar Deshmukh**  
Group Chief Technology Officer

## Dear Shareholders,

This is the last message I am writing to you as Sona Comstar's Group CTO. After serving the automotive industry for close to fifty years, I will retire on October 31, 2024.

While I prepare to conclude my tenure, I am filled with both nostalgia and gratitude. Thirty-eight years ago, when I joined the legendary Dr. Surinder Kapur to establish a nascent steering systems-making company, little did I imagine that the seeds of excellence we were sowing would grow into one of India's leading automotive technology companies, supplying highly engineered, mission-critical automotive systems and components to the world's leading OEMs.

The voyage since then has been challenging yet rewarding in many ways. It has been a journey of learning and unlearning, forgetting the conventional and embracing the new. We have explored opportunities, allocating time

for innovation, reinforcing a culture of experimentation and failures, and nurturing passionate individuals in the organisation. This approach has helped us navigate numerous challenges and celebrate many milestones, each step forward bolstered by our commitment to innovation. This farewell is thus not just about taking leave after an eventful tenure but a celebration of our collective achievements.

## Reflecting on our progress

As we transition to a future filled with promise, my sentiments are a mixture of immense pride and genuine optimism. FY 2023-24 has been a landmark year for our Company, defined by significant technological advancements and strategic partnerships that further our journey towards E.P.I.C. (electrified, personalised, intelligent, and connected) mobility. The year also saw our dedication to innovation, sustainability, and operational excellence reach new heights.

This past fiscal year, while we built upon the success of previously commercialised products like the net-shaped spiral bevel gear, the electronically controlled locking differential (EDL), the input shaft, and the intermediate gear, our focus was on pushing the boundaries of the possible even further. Commercialised over a year ago, these products have laid a solid foundation for our ongoing efforts to revolutionise electric vehicle (EV) components.

Our strategic partnership with the UK's Equipmake is a testament to our forward-looking approach. This collaboration will introduce high-voltage traction motors and liquid-cooled inverters into our portfolio. The alliance not only marks a significant leap in our capability to offer cutting-edge motor technologies but also sets new standards for efficiency and power density in the EV industry, thanks to the revolutionary spoke architecture of these motors.

Our technology roadmap has seen substantial enhancements this year, with the addition of eight groundbreaking products, including an integrated motor controller that we commercialised in the year. This breakthrough product is compact, more efficient, and easy to install. It offers additional benefits, such as more efficient heat management, advanced communication capabilities, and reduced wiring and connectivity issues. From developing lightweight differentials to pioneering advanced integrated motor controllers, our commitment to excellence and delivering superior value remains uncompromising. These initiatives, alongside our ventures in the non-automotive mobility sector and the development of precision gears for industrial robots, underline our broad vision for mobility and our relentless pursuit of innovation.

The launch of our third business vertical, which focuses on sensors and software, marks a significant milestone in our journey. Our radar technology, capable of detecting life presence and optimising safety applications, places us at the forefront of the EPIC revolution. This move diversifies our portfolio and emphasises our commitment to advancing more intelligent, connected, and personalised mobility.

## Looking ahead

As we embark on fiscal year 2025, our dedication to pushing the boundaries of technology remains unwavering. Our strategic roadmap is clear: we aim to capitalise on our technological breakthroughs and partnerships to cement our leadership in electric mobility. We are committed to exploring new avenues in personalised, intelligent, and connected mobility, ensuring our offerings exceed our customers' evolving expectations.

More innovative products and technologies will be introduced in the coming years. Our lightweighting, thermal management, and functional safety initiatives are just the beginning of a broader strategy to maintain our competitive edge.

In alignment with our future-oriented strategy, we have planned an increase in our R&D expenditure for FY 2024-25. This investment will make up at least 1% more of our revenue than the previous year, underscoring our commitment to innovation and its pivotal role in driving our future growth.

As we look forward, I am confident of our capacity to continue delivering innovative solutions that catalyse growth, profitability, and sustainability. The road ahead is brimming with potential, and I am thrilled to envision the journey that will shape the future of mobility and create enduring value for all our stakeholders.

## Passing the torch with gratitude

As I say goodbye, I am happy to pass the baton to an able, competent, and passionate professional. My successor, Mr. Praveen Chakrapani Rao, has over thirty years of experience in the automotive industry. He has held leadership positions in Business Development, Product Strategy, Sales and Marketing, Product Development, and Engineering. He has worked with global product development teams and has played a lead role in setting up our assembly plants in the US, China, and Mexico. He was responsible for building Sona Comstar's R&D into a 250+ strong team, delivering cutting-edge EV products for the Company. I am confident that Praveen will carry forward our legacy of innovation and leadership. Together, we will ensure a seamless transition, upholding our mission and vision for the future.

The past year's achievements resulted from the dedication and ingenuity of our team and partners. Their concerted efforts have laid a robust foundation for navigating forthcoming challenges and seizing emerging opportunities. I can't thank them enough.

Warmest regards,

**Kiran Manohar Deshmukh**  
Group Chief Technology Officer

## New products added in the last three years



### Integrated Motor Controller Module (IMCM)<sup>1</sup>

We developed IMCM for a predictive active suspension system that detects bumps, speed breakers, and other disturbances and responds independently. The IMCM generates precise counteracting forces to mitigate the impact of uneven roads. With nearly two million lines of code, the IMCM showcases our ability to integrate hardware and software for intelligent and autonomous vehicles.

### Spool Gears<sup>2</sup> & Epicyclic Geartrain<sup>3</sup>

Our Spool Gears and Epicyclic Geartrain offer the solution for three- or four-motor drivetrain architectures, as they offer the demanding features of electric vehicles even in the absence of a mechanical differential. While the one- and two-motor architecture of vehicles supported by our final drive differential assemblies is likely to be the most prevalent configuration in the future, with these new products, we now have solutions for every format of electric drivetrain.

### Spiral Bevel Gears<sup>4</sup>

Perhaps for the first time in the world, we made Spiral Bevel Gears using precision forming instead of cutting the gear teeth. This innovation, akin to the same shift with straight bevel gears decades ago, yields net-formed gears that optimise steel usage and grain structure. Leveraging our expertise in net-forming, we are now offering high-quality spiral bevel gears at competitive costs.

## Our technology roadmap

Our technology roadmap for E.P.I.C. mobility reflects our proactive approach to the future of transportation and sustainability. We are not only focusing on electrification but also developing products in personalised, intelligent, and connected domains. In Driveline Business, our product journey began with differential bevel gears, expanding into differential assemblies, final drive differential assemblies, and many other products for electric vehicles. In the motor

### Electronically Locking Differential (EDL)<sup>5</sup>

EDL is an advanced system used in high-performance and off-road vehicles. It employs electronic actuators to lock the wheels on a vehicle's left and right sides together, allowing them to rotate at the same speed. This enhances stability, traction, and safety. The EDL system integrates with the vehicle's sensors that detect speed, steering angle, and yaw rate, to determine when to lock or unlock the differential based on driving conditions, contributing to better performance of vehicle in off-road and adverse weather scenarios.

### Intermediate Gears<sup>6</sup> & Input/Rotor Shaft<sup>7</sup>

Our Input/Rotor Shaft and Intermediate Gears enhanced our precision forming and machining capabilities, bringing us closer to developing a comprehensive EV gearbox. These groundbreaking products affirm our commitment to environmentally friendly and safety-enhancing solutions, positioning us at the forefront of precision engineering in the EV sector.

### Integrated Motor Controller<sup>8</sup>

The Integrated Motor Controller is our latest breakthrough product that is compact, more efficient, and easy to install compared to a separate traction motor and controller in a vehicle. It offers additional benefits, such as more efficient heat management, advanced communication capabilities, and reduced wiring and connectivity issues.

business, we started with starter motors. We progressed to hub-wheel and mid-mount drive motors for electric two-wheelers and three-wheelers, culminating in integrated motor controller systems and further evolving to high-voltage and other mobility applications. This evolutionary process highlights our commitment to innovation and the expansion of our product offerings and our portfolio of 64 patents (34 granted, 30 applied).

