

Ola Electric scales up for competition

By maximising land use and ensuring control over key technologies, the e-mobility company hopes to gain a lead over competitors



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It's a two-hour drive from Bengaluru to a village that is coincidentally called Olaipatti in the Krishnagiri district of Tamil Nadu. But the small village (population: 2,000), accessible from Bengaluru after crossing the Cauvery river, is witnessing a dramatic EV revolution. Ola Electric, the two-wheeler company of Ola, is expanding the annual capacity of its single mega-block modular plant fourfold to four million, with a planned ramp-up to 10 million, roughly half the current sales of scooters and motorcycles in the country. But it will pack this capacity in one single factory with a covered area of just 43 acres (currently 17 acres) compared to 2,500 acres Ola claims that two-wheeler competitors use for production and storage space.

"Once completed, it will be the largest covered building in the country, twice the size of Bengaluru airport's covered terminal," said Bhavish Aggarwal, founder and CEO, adding, "In terms of production, it will be the most capital-efficient two-wheeler plant in the world at scale and it would also make the most productive use of land in the country compared to our competitors."

That's to start with. Sometime next, the company is planning to begin work on a one-million capacity passenger car factory — with the first model scheduled to roll out by 2024.

Experts said that a car fac-

POWERING EXPANSION

- Ola Electric is building a plant with 10 million annual two-wheeler capacity in just 43 acres of covered space
- It will be the largest building in India and twice the size of the Bengaluru airport terminal building space
- A scooter is churned out every one minute and takes 40 minutes to assemble across various stations
- 2,000 women work in two shifts to make 1,000 scooters a day
- As many as 100 robots, both fixed and mobile, help in key areas of work. The number will go up to 3,000 at full capacity
- Battery pack-making goes through 140 stations with numerous checks and rechecks to avoid any issues
- Company will be adding in-house manufacture of motors as well as cells, which account for the bulk of the cost of a scooter

tory of this size would require about 500 acres alone, whereas the company has a total of 500 acres in and around this unit, of which 140 acres is for all two-wheeler facilities. But Aggarwal thinks he can replicate the two-wheeler experience by designing a modular factory with efficient use of land and effective use of automation so it can be accommodated within the land it already has. The premises will also accommodate the nerve centre of the plant to make cells, initially of 5 GwH, rising to 20 GwH and 100 GwH depending on captive demand.

This unit, which is expected to help the company replace relatively expensive cell imports, would supply both two-wheelers and cars — the same battery cells will power both, only the numbers used will be different. As part of the

same plan is a vendor hub, with the first supplier expected to set base here soon.

To churn out the large numbers and more efficiently, Ola depends on fixed robots for key operations, especially for making battery packs and in the paint shops. It also uses autonomous mobile robots (AMRs) to move materials from the stores to the assembly area, a time-saving move. Ola executives said they have already deployed 100 robots (half of them fixed robots and the rest AMRs) but the eventual plan is to have over 3,000 of them at full capacity across the mega plant.

No less importantly, the Ola Electric factory has an all-women's team of some 2,000 workers who control every operation, from staffing the entire 40 stations that are

required to assemble a scooter to security and test riders.

Much care is being taken for the battery-making unit since any defect could spark fires in a scooter, which has been a key problem of e-two-wheelers this past year. Currently, Ola imports the lithium ion cells from companies like South Korean giant LG, but the plan is that by the end of next year they will manufacture them in the country as well as control the technology. The company is one of the beneficiaries of the production-linked incentive scheme's benefits for advanced cell chemistry batteries.

The battery pack goes through over 140 stations, mostly to check and re-check reliability and precision. High resolution cameras identify whether the automated gum releaser has filled every slot in the tray in which the cells are fitted so that it is stable. A technician can identify misses on a screen and rectify it automatically.

Wire bonding between two cells — which ensures that if one cell has a problem it is immediately isolated, precluding the heating up of the others — is another process on which Ola has focused right from the start. Each cell also has a QR code, so that the problem can be traced to origin rapidly. Now, the government has made both wire bonding and QR code traceability mandatory and has asked all e-two-wheeler manufacturers to comply in phases between December and March.

Ola has also built flexibility in the paint shop so that it can offer a range of 12 colour options and paint quality equivalent to what is used in a passenger car, say executives. The paint shop is 100 per cent based on robotics, with ABB-built robots powered with 10 tubes, each one with a different colour making a shade changeover faster and less wasteful.

Even the paint and drying technology is more akin to a car — it uses polyurethane low bake paint (it is baked at a temperature of 70-80 degrees Celsius for up to 20 minutes). The process ensures that there is no colour mismatch between the plastics and the metals, low energy consumption and negative carbon footprint.

Ola is also taking another step to make components in-house. For instance, it has designed a motor that it sources externally. Over the next few months, this will be manufactured within the factory. This is part of its strategy of ensuring that it has control over all the key pieces of the technology to build a world-class electric vehicle.