

# OEM UPDATE

For Efficient Manufacturing



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Are auto ancillaries prepared for

# e-mobility?

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# Are auto-ancillaries prepared for e-mobility?



India's current EV-adoption aims at 30 per cent new sales of electric passenger cars, light commercial vans, buses and trucks by 2030. Let's see the readiness from the automobile ancillary industry's point of view.

The growth of electric vehicles (EV) in India is expected to witness differential growth patterns across cities, vehicle segments, and vehicle applications. Nonetheless, electric vehicles are expected to grow in coming years.

With thrust given by government to make India e-vehicle nation by 2030 to protect the environment from auto emissions and pollution, there will be a quantum shift in operations from Indian and overseas OEM players to align their technology and production facilities to fall in line with the e-initiative. This aggressive push will be compelling auto component manufacturers to modernise their technology and facilities to supply e-components to OEMs. This is going to be a major challenge for auto ancillary industry. So let's take a look on the readiness of EV-adoption from the auto-ancillary industry's point of view.

## Ancillary industries and tier 2 suppliers are adopting technologies

The readiness of automotive manufacturers will just not suffice this extravagant plan for EV-adoptions.

According to Ninad Deshpande, Head- Marketing, B&R Industrial Automation, the ancillary industries and the tier 2 suppliers too need to be ready. These industries and machine builders are now working on adopting technologies to make their existing machines and factories smart as well as on updating their machine design to incorporate newer systems. It's a twofold task and needs simultaneous attention. Existing machines still are operational and with adopting technologies to become smart they remain globally competitive.

However, Ninad observes incorporating new designs provides them the cutting-edge in the evolving market. Nevertheless, basic challenges in design changes include effort, time and investment. Machine builders have to bare immense costs, lost time and opportunity in case of designs goes wrong. Unfortunately, such errors are identified only on completion of the machine, during testing.

## MapleSim and Mathworks: Tools to simulate mechanics

Ninad feels with B&R's approach of virtualisation,



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Machine builders have to bare immense costs, lost time and opportunity in case of designs goes wrong.



Ninad Deshpande,  
Head- Marketing, B&R  
Industrial Automation

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There is no denying fact that e-mobility is going to stay and growth could impact auto-comp manufacturers. They have to be ready for ensuing disruption.



**Nishit Behera, Executive Director – Business Development & Strategy, RSB Transmissions (I) Ltd**

machine builders can now design machines without the availability of electronic components needed for the machine. He adds, "The mechanics can be simulated using tools such as MapleSim and Mathworks. However, electronic sizing happens on theoretical calculations and experience. B&R bridges this gap and enables machine builders to import the simulated machine design from these tools directly in automation studio, the single tool for programming all B&R systems."

This enables the machine builder to completely check the mechanics, the selected electronics even before the mechanical part is sent for machining and electronics such as controllers, drives and motors procured. The machine builder thus, reduces the time to market, costs and improves design quality and efficiency.

#### Expensive EV batteries still not manufactured in India

Fundamentally, the number of parts in a full electric vehicle is far less than that in a conventional internal combustion engine-powered vehicle. This will be a major blow to the size of the ancillary market. Further, as the type of components will be entirely different, studies of core competency will need to be revisited. According to Nishit Behera, Executive Director – Business Development & Strategy, RSB Transmissions (I) Ltd, The heart of e-vehicle is battery, which is expensive and still not manufactured in India, as also car charging stations

which are practically non-existent. Here in-house v/s bought-out debate will surface as OEMs may prefer to have their own batteries or set-up stand alone facility. Sourcing of batteries will acquire global dimension due to scarce availability of expertise and economics of sale.

The seeds for embracing e-cars have already been sown by leading OEMs like Cummins and Hyundai who have already started dialogs with component manufacturers for e-components, while Ashok Leyland has already launched electric bus partnering with SUN Mobility to develop battery-swapping technology for cars, buses and trucks. Mahindras have their e-cars already on the road.

#### Components manufacturers' tie-up with collaborators and research institute

Number of component manufacturers have already launched smooth transitioning and are positioning themselves as providers of electric mobility technology with building up of in-house capabilities for design and manufacture of products for e-transition through tie-up with collaborators and research institutes. This entails obvious capital infusion.

Worrisome issue is that mid-sized industry segment will witness significant drop for the conventional and transmission components, and resource or know-how constraints as a consequence. This disruption in supply chain may make small players to fold up if a proper assessment of direction of future technology is not made and development prioritised accordingly. Showing the way forward for auto components Nishit said, "There is no denying fact that e-mobility is going to stay and growth could impact auto-comp manufacturers. They have to be ready for ensuing disruption."

He opines, "Firstly, acknowledge and move fast. Phase one will witness electrification of three-wheelers and buses followed in Phase two by scooters, taxis and LCVs and eventually capped in Phase three by private cars and other vehicle segments."

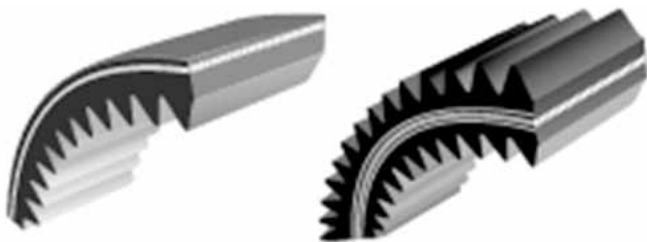
There would be a gradual transition from ICE vehicles across various segments giving breathing time to transition to a different product mix. However, when the balance shifts in the supply-demand, auto component manufacturers need to opt for significantly lean-and-mean operations in ICE components and re-invent the business, including collaborating with OEMs and other manufacturers across the global industry.

#### Prototyping, testing facilities and skills needs to build to serve EV industry

While it will pose a challenge to take control of the EV market individually, auto-comp manufacturers could benefit by collaborating among them and with OEM to chart out their EV path and accordingly define individual strategies. Now it is a right time to start on this as the prudent players have already embarked on forming partnerships. While seeking a best business model, erstwhile models in other geographies may not

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PIX-VoyagerPlus: automotive belts for EV

necessarily be the best solution for markets in India. New assets like new prototyping and testing facilities and skills to serve the needs of the new age EV industry will have to be built to thrive in the ecosystem.

While transition to e-modes will happen in view of deteriorating ecology posed by conventional ICEs, it is imperative that one have to adapt to change and chart out detailed plan and strategy right now, as, otherwise, it will be too late.

#### PIX-VoyagerPlus: Automotive belts for EV

Debates are on that the government may provide special incentives for the electric vehicles, to bring the cost further down and make them affordable. Pix Transmissions have extended the automotive belt product range to fulfil the power transmission needs of the high torque engine drive. Pix have launched special construction belts to power the drives in the electric vehicles.

PIX-VoyagerPlus variable automotive raw edge cogged belts are specially designed for high power, high speed engines. The belts are constructed using special fibre loaded compound which provides high lateral strength facilitating smooth clutching and offers a better grip, enhancing the power transmission capacity and efficiency.

#### Features of PIX-VoyagerPlus

- Superior construction to sustain high torque capacity and extreme operating conditions.
- Engineered cog design (single or double sided) for better flexibility and heat dissipation.
- High temperature resistant, the belts can withstand temperature from (-) 25 C up to (+)100 C.
- Superior grip to transmit maximum power with high efficiency.
- Lower slippage, which adds to the product life and efficiency.

#### Battery technology for EV is not stable

The success of the EV industry depends on the back of one component, the battery. Udit Sheth, Joint Managing Director, Setco Automotive Ltd said, "The battery is designed to power the motor and auxiliaries. The battery technology for the EV is still not stable. Which technology will drive the industry quite literally is a puzzle. Further deep diving into the space, one need to ensure safety as heating and cooling in our climate in India will take a substantial amount of study and control. The batteries are made of highly inflammable material that is also



The battery technology for the EV is still not stable. Which technology will 'drive' the industry quite literally is a puzzle.



Udit Sheth, Joint Managing Director, Setco Automotive Ltd.

quick to flare up. Hence the first and foremost mutual focus by industry, government and customer must be on safety."

#### EV charging infrastructure needs to be in place

The other aspect that one needs to look at is the durability of the battery and thus the viability and the duty cycle. The vehicle travel distances need to be looked at by category e.g. two-wheeler use, three-wheeler use, four-wheeler use, and vehicles that have extensive and rigorous duty cycles. Udit says, "The interesting calculation is the downtime of vehicles or rather the uptime keeping in mind battery life and charge times, after all we are not charging mobile phones. Once this aspect is looked into the charging infrastructure needs to be in place and if the technology can seamlessly plug into existing charging systems then life can be easier, else new wiring, new infrastructure, and a whole lot of focus on fire and safety will come into play."

Implementation should be phased in a controlled manner thus allowing government and industry to test the systems, fine tune the issues and take care of bugs to the ensure all issues such as charging infrastructure, manufacturing, employment, transition, capacity, transition and education, power generation are all coming together rather than happening in piecemeal.

#### Availability of raw material needs evaluation

"Everyone is optimistic about the new industry and rightly so on the face of it. Once we dig deeper, we need to see if any of the raw materials are available in India. Lithium, copper, graphite and others are not local. This is something that is still at a nascent stage and needs evaluation. If the materials are available locally it will have a positive impact on jobs. After all, as we migrate from the ICE (Internal Combustion Engine) to EV, we will have to look out for employment as a key issue," concludes Udit.

