5 Electric Vehicle Assembly Solutions To Improve Speed to Market

With the electric vehicle (EV) revolution underway, automotive manufacturing is changing fast. To keep ahead, OEMs and manufacturers need more productive automation technologies that will get them to market faster. Whether it's for a new production line or converting internal combustion (IC) assemblies to EV production, manufacturers can speed up engineering and rapidly scale production with the right technology and support.

Here are five ways to improve time to market throughout the EV assembly process.

1. ADVANCE LIGHTWEIGHTING OPERATIONS WITH SMARTER WELDING CONTROLS

Reducing vehicle weight with materials like aluminum and more complex component designs comes with a whole new set of welding challenges. The next-generation PRC7000 welding controller platform lets operations customize parameters to specific throughput and material characteristics. With a simple drag-and-drop interface, welders can build sophisticated welding sequences and store up to 10,000 programs.

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2. OPTIMIZE MANUAL ASSEMBLY WITH I4.0-READY TOOLS

Expert assembly personnel need exact precision and consistency when installing and connecting components like headlights, center consoles, window controls and more. Intelligent tightening tools like the EXACT ION cordless screwdriver and NEXO cordless Wi-Fi nutrunner provide industry-leading accuracy and connected quality control to boost productivity. Between workstations and production cells, autonomous mobile robots like the MP1000R use advanced locator software to accurately map and navigate the factory floor to deliver parts, tools, pallets and more. These i4.0-ready tools also generate critical data needed to optimize manual processes and workflows.

3. BOOST BATTERY PACK PRODUCTION WITH SOLUTIONS THAT SIMPLIFY ENGINEERING

Every step of the battery pack production process requires a complex array of automation technologies to meet high throughput rates and extremely tight assembly tolerances. Operations can greatly reduce the engineering burden associated with these processes using an app-based approach to automation and plug-and-produce mechatronic systems. The ctrlX AUTOMATION platform features advanced control and drive systems using the latest app technology to simplify engineering and boost productivity, while the Smart MechatroniX platform offers plug-and-produce systems that make programming easy with drag-and-drop configuration.

4. INCREASE SPEED AND FLEXIBILITY WITH A FULL RANGE OF MODULAR TRANSPORT

EV manufacturers need a wide range of material transport systems to handle a variety of speeds and increasing loads at each assembly step. VarioFlow *plus* plastic chain conveyors are proven systems that can be quickly configured to rapidly move components horizontally, vertically and around obstacles. Further down the line, linear motor-based transfer systems like ACTIVE Mover and Flexible Transport System support pallet-based transport for loads over 400 kg. These systems maximize efficient use of factory floor space and allow individual carrier control for more complex movement at faster throughput rates.

5. ENHANCE END-OF-LINE TESTING WITH PRECISE POWER CONTROL

Before every vehicle is released, the performance of each battery pack needs to be measured precisely and quickly in a high-throughput, highly automated testing system. IndraDrive ML power converters provide ultra-precise control during testing by supplying constant voltage, current and power according to the required test cycling. The versatility and modularity of the IndraDrive ML platform also makes it easier for manufacturers to select one common hardware power stack to supply power for both battery pack and e-axle testing systems.

Choose a technology partner who can support you from beginning to end.

Behind every automation solution from Bosch Rexroth are decades of application expertise and engineering know-how. Our automation experts use that knowledge to support EV operations, from concurrent engineering to full lifecycle support, so production is positioned for long-term success.

Get started at

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