

Top Hairpin EV Motor Assembly Line Manufacturer Advances Intelligent Motor Production

TAIZHOU, ZHEJIANG, CHINA, September 22, 2026 /EINPresswire.com/ -- As electric vehicles continue to reshape the global automotive industry, manufacturers are placing increasing emphasis on motor efficiency, production consistency, automation, and scalable manufacturing processes. Against this industry backdrop, Juli Aoxuan Technology (Zhejiang) Co., Ltd. is developing its role as a specialized manufacturer of intelligent motor production equipment, with a particular focus on hairpin winding technology and electric vehicle motor manufacturing. Its equipment portfolio and engineering capabilities are designed to support automotive manufacturers and other motor producers seeking automated solutions for increasingly sophisticated electric drive systems.

The electric motor has become one of the most important components in modern electric vehicles. As vehicle manufacturers pursue higher power density, improved efficiency, compact motor structures, and greater production efficiency, the manufacturing process behind the motor has also become increasingly sophisticated. Production equipment must accommodate demanding winding, forming, insertion, welding, testing, and assembly requirements while maintaining repeatability throughout high-volume production.

Hairpin winding technology has become an important manufacturing approach for electric vehicle traction motors. Unlike conventional winding methods, hairpin technology uses formed flat copper conductors that are inserted into stator slots and subsequently connected through a series of forming, twisting, trimming, and welding operations. This process requires specialized automation equipment because the geometric accuracy of the conductors and the consistency of each processing stage can directly influence downstream assembly and electrical performance.

Juli Aoxuan Technology (Zhejiang) Co., Ltd. operates within this specialized automation sector, providing equipment and production-line solutions for electric motor manufacturing. Public company information describes JULI Automation as a high-tech enterprise focused on the research, development, and manufacturing of intelligent production equipment for electric vehicle flat-wire motors and vehicle micromotors. The company reports nearly three decades of technological experience in winding and hairpin-related technologies.

The growing adoption of hairpin motor technology has created new requirements for automated

production. A hairpin stator line may involve numerous interconnected processes, each requiring precise positioning and process control. According to JULI Automation's published process description, its automated hairpin stator production solutions can cover paper insertion, pin forming, basket setup, basket insertion, widening, twisting, trimming, welding, impregnation, and powder coating.

This multi-stage production structure illustrates why hairpin motor manufacturing requires more than individual machines. The coordination between processes is equally important. Material transfer, positioning, parameter control, quality inspection, and traceability can all affect the stability of the complete production line. An integrated automation approach can therefore help manufacturers coordinate multiple processes within a unified production environment.

Within this market, the Stator Assembly Line is an important category. The stator is a core component of an electric motor, and the quality of stator manufacturing can have a direct relationship with the performance and consistency of the finished motor. For hairpin motors, stator production involves specialized conductor forming and insertion processes that differ from traditional winding methods.

Juli Aoxuan Technology (Zhejiang) Co., Ltd. provides Stator Assembly Line solutions designed around automated motor production processes. The company's published information indicates that it can provide automated solutions for individual stator-processing steps as well as complete production lines. This modular approach allows manufacturers to consider either a comprehensive automated system or individual process stations according to their existing production structure.

The flexibility of production equipment is becoming increasingly relevant as automotive manufacturers manage multiple motor platforms and product generations. Different electric motors may vary in dimensions, winding structures, conductor configurations, output requirements, and assembly processes. Production equipment therefore needs to accommodate defined product specifications while maintaining reliable process control.

JULI Automation's published information highlights flexibility as one of the characteristics of its hairpin production solutions. The company describes capabilities involving automated mold changes, mixed production, process traceability, mechanical simulation, virtual commissioning, and digital twin technologies. These functions are intended to support production systems that can adapt to different manufacturing requirements.

Another important aspect of modern motor manufacturing is traceability. As production becomes more automated, manufacturers increasingly need to collect and manage information associated with individual components, process parameters, and quality checks. Traceability can help production teams identify process deviations and establish a clearer connection between manufacturing data and finished products.

For electric vehicle motor manufacturers, traceability can be especially useful when multiple production stages are connected into a single automated line. A production system that records relevant process information can provide manufacturers with greater visibility into manufacturing conditions and quality-control results. JULI Automation identifies full traceability of production and quality information as one of the capabilities of its intelligent hairpin winding solutions.

Automation is also closely connected with production efficiency. Electric vehicle motor production involves numerous repetitive operations, and automated equipment can reduce the need for manual intervention at selected stages. At the same time, automation requires careful engineering because each machine must interact correctly with upstream and downstream processes.

The company states that it has delivered more than 300 production lines and more than 60 mass-production lines, while also describing nearly 30 years of experience in the sector. These figures are company-reported and reflect JULI Automation's stated project experience in motor-production automation.

The company's experience also extends across different types of customers. Its official company profile identifies automotive and industrial organizations among its customers and names companies including SAIC, Great Wall, Geely, FAW, BorgWarner, Bosch, Hitachi, Nidec, and LG. These references are presented by the company as examples of organizations it has worked with and should not be interpreted as independent evaluations of its products.

For automotive manufacturers, the ability to move from prototype development to mass production is another significant consideration. Motor designs can undergo substantial testing and modification before entering large-scale manufacturing. Production equipment must therefore be able to support development stages while providing a pathway toward stable mass production.

JULI Automation states that it provides EV motor design, prototyping, and production services in addition to equipment manufacturing. Its published service structure includes market and process analysis, process feasibility evaluation, equipment development, process design, lean manufacturing and assembly, visual parameter setting, and virtual debugging.

This combination of engineering and equipment capabilities can be relevant to manufacturers developing new electric motor platforms. Rather than treating equipment as a standalone purchase, an integrated engineering approach considers how the motor design, production process, equipment configuration, and factory environment interact with one another.

The [BLDC Motor Assembly Line](#) represents another area within the wider motor automation sector. Brushless DC motors are used across automotive components, industrial equipment, consumer products, cooling systems, and other applications. Their manufacturing processes can

include stator winding, rotor assembly, testing, balancing, and final assembly, depending on the motor architecture and intended application.

Juli Aoxuan Technology (Zhejiang) Co., Ltd. includes BLDC Motor Assembly Line solutions within its broader motor production equipment portfolio. Such production-line solutions complement its focus on electric motor automation and demonstrate the company's involvement in motor manufacturing beyond a single type of winding or assembly process.

Although BLDC motors and hairpin traction motors can involve different manufacturing requirements, both demonstrate the broader trend toward automated and data-supported motor production. Manufacturers are increasingly seeking equipment capable of improving repeatability, reducing manual process variation, and supporting stable production at scale.

Quality control is particularly important in motor manufacturing because seemingly small process variations can influence electrical and mechanical characteristics. Winding position, conductor geometry, welding quality, insulation treatment, and assembly accuracy can all require controlled parameters and inspection. Automated equipment can incorporate sensors, testing systems, and process monitoring to support these requirements.

Hairpin motor manufacturing also creates specific challenges around copper conductor handling. Flat wire must be formed into precise geometries before insertion into the stator. After insertion, conductors may need to be widened, twisted, trimmed, and welded. Each stage must be coordinated with the previous process to avoid deformation or positioning problems.

JULI Automation describes solutions addressing several of these manufacturing challenges, including hairpin forming, material handling, winding precision, insulation and thermal-management considerations, and motor-component integration. The company also highlights simulation and three-dimensional modeling as tools used in its engineering approach.

The development of next-generation electric motors is also encouraging equipment manufacturers to explore new winding concepts. JULI Automation's public materials reference X-pin and W-pin technologies as areas of continued technological development. This indicates that the company's R&D activities extend beyond established hairpin processes toward additional approaches to flat-wire motor manufacturing.

For global automotive suppliers, production-line scalability is another important consideration. Electric vehicle demand can fluctuate across regions and product platforms, making it necessary for manufacturers to plan equipment capacity carefully. Production lines may need to accommodate future volume increases, new motor variants, or process modifications without requiring a complete redesign.

A modular production architecture can help address some of these requirements. Individual process stations can be developed and integrated according to a manufacturer's existing

production strategy. JULI Automation states that it can provide automated solutions for individual stator processes, allowing customers to integrate selected equipment into their own automated production systems.

Turnkey solutions represent another approach. JULI Automation states that a complete EV motor assembly can consist of several independent assembly systems and that it can provide a complete assembly line covering multiple subprocesses. The company specifically identifies technical consulting for global OEMs and Tier 1 suppliers, with particular experience in stator assembly for electric flat-wire motors.

The choice between individual equipment, modular production stations, and complete turnkey lines depends on factors such as factory layout, production capacity, existing equipment, motor design, investment plans, and automation strategy. Different manufacturers may therefore require different levels of integration.

As electric vehicles continue to develop, the manufacturing equipment supporting their motors is likely to remain an important area of industrial innovation. Higher power density, increasingly compact motor designs, advanced winding technologies, and the need for large-scale production are placing new demands on automation suppliers.

The evolution of intelligent manufacturing is also changing how production lines are designed and operated. Virtual commissioning, digital simulation, production traceability, automated parameter management, and data collection can help connect physical manufacturing equipment with digital production systems. These technologies are becoming increasingly relevant as automotive factories pursue greater visibility and flexibility.

Juli Aoxuan Technology (Zhejiang) Co., Ltd. is positioned within this industrial environment through its focus on motor manufacturing equipment, particularly solutions associated with electric vehicle flat-wire motors and hairpin technology. Its Stator Assembly Line and BLDC Motor Assembly Line capabilities form part of a broader portfolio covering motor assembly, winding, and automated production processes.

The company's approach combines equipment development with process engineering, enabling it to address different stages of motor manufacturing. From individual stator processes to complete EV motor assembly lines, the company provides solutions that can be adapted to different manufacturing strategies.

For automotive and motor manufacturers evaluating new production equipment, factors such as process stability, automation level, scalability, traceability, service support, and compatibility with the target motor design remain important considerations. Equipment selection is therefore closely linked to the technical requirements of the motor itself.

As the transition toward electrified transportation continues, automated motor manufacturing

will remain a key part of the automotive supply chain. Hairpin technology, in particular, is expected to remain an important manufacturing approach for electric traction motors, while other motor architectures will continue to require specialized production equipment.

Through its focus on intelligent motor production, Juli Aoxuan Technology (Zhejiang) Co., Ltd. participates in this developing market by providing automation equipment and engineering services for motor manufacturers. Its experience in hairpin winding, stator assembly, prototyping, and automated production positions the company within a specialized segment of the global automotive equipment industry.

About Juli Aoxuan Technology (Zhejiang) Co., Ltd.

Juli Aoxuan Technology (Zhejiang) Co., Ltd. is a China-based manufacturer specializing in intelligent production equipment for electric motors and automotive applications. The company focuses particularly on electric vehicle flat-wire motors, hairpin winding technology, stator production, and automated motor assembly. According to its official company information, JULI Automation has accumulated nearly 30 years of experience in winding and hairpin technology and provides equipment and engineering services to global customers.

The company's capabilities cover EV motor design, prototyping, process development, equipment manufacturing, and production-line integration. Its solutions include Stator Assembly Line systems, individual stator-processing stations, complete EV motor assembly lines, and other automated motor-production equipment. The company also identifies BLDC Motor Assembly Line solutions within its broader motor automation capabilities.

Juli Aoxuan Technology (Zhejiang) Co., Ltd. focuses on helping manufacturers improve production automation, process consistency, traceability, and scalability. Its published technologies include hairpin winding solutions, automated forming and assembly processes, virtual commissioning, mechanical simulation, digital twin technologies, and production-quality traceability.

The company is based in Jiaxing, Zhejiang, China, and its official website identifies its address as No. 1268, Gangshan Road, Xiuzhou District, Jiaxing City, Zhejiang, China. More information about Juli Aoxuan Technology (Zhejiang) Co., Ltd., its hairpin motor solutions, and its motor production equipment is available at [www.juli-winding.com].

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