Automotive Traction Inverter Industry Outlook (2023–2032) : Market to Grow from $10.5B to $46.3B at 16.4% CAGR

WILMINGTON, NEW CASTLE, DE, UNITED STATES, July 28, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "Automotive Traction Inverters Market," The automotive traction inverter market size was valued at $10.5 billion in 2022, and is estimated to reach $46.3 billion by 2032, growing at a CAGR of 16.4% from 2023 to 2032.

Asia-Pacific currently dominated the automotive traction inverter market in 2022. This was primarily due to China is actively adopting EVs, investing in EVs and clean energy sources. India is a one of major player in EV adoption, while India and South Korea still need improvement in charging infrastructure and are focusing on improving infrastructure and promoting electric vehicles.

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Europe is the second largest market for the automotive traction inverters in 2022. Europe is a prominent region in the automotive traction inverter industry, comprising the UK, Germany, France, Italy, Spain, Russia, Netherlands, Norway and the rest of Europe. One notable trend is the increased emphasis on lowering carbon emissions and meeting sustainability standards. European governments have imposed strict pollution limits, promoting the use of electric vehicles. In addition, the EU announced carbon emission guidelines for a variety of vehicle types. For example, fleet average reductions are projected to reach 45% by 2030, 65% by 2035, and 90% by 2040, with all new municipal buses expected to be zero-emission vehicles (ZEV) by 2030. Furthermore, there is a mandate for a 15% decrease in carbon emissions from new automobiles and vans by 2025 compared to 2021 levels.

In addition, there are targets of a 55% reduction in carbon emissions for cars and a 50% reduction for vans by 2030. The ultimate objective is to achieve a complete elimination of emissions, aiming for a 100% reduction by 2035. To meet these stringent emission standards, automotive companies need to accelerate the adoption of electric vehicles (EVs) and hybrid vehicles (HVs), which further automotive traction inverter market in the region. This has resulted in a significant demand for automotive traction inverters in the region. Moreover, Germany has presence of major players such as Robert Bosch GmbH, TDK Electronics, Vitesco Technologies Group Aktiengesellschaft and hofer powertrain.

These companies have made significant investments in research and development to enhance the performance of traction inverters. As a result, they have developed advanced traction inverters that deliver improved performance in electric vehicles. For instance, in August 2022, Germany based hofer powertrain and VisIC Technologies announced a collaboration to develop gallium nitride-based inverters for electric vehicles. This collaboration aims to leverage gallium nitride technology to achieve exceptional performance and cost improvements for 800V battery systems in the automotive industry. In addition, in December 2021, Robert Bosch GmbH introduced its first generation of SiC MOSFETs for automotive traction inverters to optimize the power modules.

Moreover, IGBTs is one of major segments of automotive traction inverter market. IGBTs are preferred for high-voltage applications in automotive traction inverters, such as electric and hybrid vehicles. The ability to handle high voltages and currents, combined with their robustness and reliability, supports their usage in these demanding applications. IGBT-based inverters may be integrated with advanced control algorithms to optimize their performance, efficiency, and dynamic response. This integration allows for improved traction control, regenerative braking, and overall vehicle performance.

The increase in adoption of electric and hybrid vehicles is a significant driver for IGBT-based inverters. As the demand for electrified vehicles continues to rise, the need for efficient and high-performance power electronics, including IGBTs, expands correspondingly. In addition, semiconductor providers collaborated to meet the increased demand for IGBT inverters by the automotive industry. For instance, in May 2023, Denso Corporation, entered into a collaboration with United Semiconductor Japan Co., Ltd. (USJC), a subsidiary of semiconductor foundry United Microelectronics Corporation (UMC). The collaboration aims to produce insulated gate bipolar transistors (IGBT) and has already achieved mass production at 300mm fab of USJC. IGBTs play a crucial role in electric vehicles by acting as switches in inverters, converting DC current from batteries into AC current to drive and control electric vehicle motors.

Moreover, with the increase in use of batteries and related components, a large amount of heat is dissipated from these devices in electric vehicles. Proper cooling and ventilation are important

to maintaining component functionality. Therefore, manufacturers strive to develop inverters equipped with a unique cooling system. For instance, in December 2021, Hitachi Astemo Ltd. announced adoption of inverter by Geely Automobile Holdings Limited. For the hybrid powertrain platform "Leishen Hi-X", it is equipped with a direct water-cooled double sided cooling power module characterized by its small size and high output. Therefore, advancements in inverter systems to obtain high thermal performance are expected to drive the growth of the market during the forecast period.

COVID-19 Impact Analysis :

The COVID-19 pandemic has had a major impact on worldwide economic activities, particularly the automobile and electric car industries. The pandemic caused a significant decline in car sales, as well as a shortage of raw materials and other factors. Port congestion, periodic closures, and supplier delays are being exacerbated by pandemic-related concerns. However, the automotive traction inverter market has rebounded after the COVID-19 pandemic due to the resumption of economic activities, increased demand for electric vehicles, technological advancements, and industry collaborations.

Key Findings Of The Study :

By propulsion type, the BEV segment is anticipated to exhibit significant growth in automotive traction inverter market in the near future.

By output power, the less than or equal to 130 kW segment is anticipated to exhibit significant growth in automotive traction inverter market in the near future.

By semiconductor material, the silicon (Si) segment is anticipated to exhibit significant growth in automotive traction inverter market in the near future.

By region, Europe is anticipated to register the highest CAGR during the forecast period.

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The key players profiled in the automotive traction inverter market report include BorgWarner Inc., Denso Corporation, Eaton Corporation, Hitachi, Ltd., Mitsubishi Electric Corporation, Robert Bosch GmbH, Curtiss-Wright Corporation, TDK Electronics, Valeo SA, and Vitesco Technologies Group Aktiengesellschaft.

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