

From Torque to Tech: The Smart Future of Variable-Speed Drives

WILMINGTON, NEW CASTLE, DE, UNITED STATES, November 21, 2024 /EINPresswire.com/ -- As per the report published by Allied Market Research Titled "[Variable-Speed Drive Market](#) by Type (AC Drive, DC Drive, and Servo Drive), Voltage (Low voltage and Medium Voltage), Application (Compressor, Pump, Fan, and Others), and End User (Mining & Minerals, Waste & Wastewater, Food & Beverage, and Others) - Global Opportunity Analysis and [Industry](#) Forecast, 2017-2023"

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The flexibility of coordinating power makes variable-speed drives a vital component in the electricity distribution process. Besides regulating voltage and saving energy, it also notably reduces maintenance costs. Over the years, these devices have become more efficient and compact due to semiconductor technology upgrades. Moreover, integration with IIOT and progress in control precision have also brought remarkable outcomes.

Control algorithms in variable speed drive regulate motor speed and torque, on the basis of operational requirements. It saves energy, with some applications reducing almost 60% of the consumption. For example, ABB's ACS880 drives allow the motors to run efficiently. The systems have integrated sensors and IoT connectivity that provide important data for predictive maintenance. Operators observe repair needs before problems arise, keeping track of motor speed, torque, and other parts. These preventive measures not only minimize downtime or lower maintenance costs but also run the entire operation smoothly. It results in long-term efficiency and reliability. For example, drive train is a powerful combination of the element and the motor that has been completely re-engineered for the VSDseries by the Atlas Copco R&D team. Atlas Copco VSD compressors have a rotary screw element. It features two twin rotors rotating in opposite directions, compressing the air between them.

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David Correa

Allied Market Research

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