

Flywheel energy storage patent

Accordingly, the invention provides a speed control for a flywheel energy storage system that provides accurate and reliable speed control for long-term operation. The speed control uses a current limiting means that safely limits the acceleration current to the motor for accelerating flywheel, and a rate controller that digitally switches the acceleration current on and off to ...

This innovation, patented on June 19, 2024, at the Boudhik Sampada Bhavan in Kolkata and published in the National Official Journal of the Patent Office on July 5, 2024, is titled "A Process to Make Over Unity Efficiency Flywheel." Flywheel Energy Storage Systems are mechanical devices that store energy in the form of rotational kinetic ...

Techniques for flywheel energy storage devices including magnetic bearings and/or magnetic drives are generally disclosed. Some example magnetic bearings may include a flywheel magnet and a support magnet arranged to magnetically suspend a rotating flywheel. Some example magnetic drives may include at least one drive magnet arranged to magnetically engage a ...

The flywheel energy storage systems all communicate with a cluster master controller through EtherCAT. This protocol is used to ensure consistent low latency data transfer as is required for fast response times, which is <4ms to bus load changes. ... UK Patent GB2489523. International Patent PCT/GB2019/052636. USA; Europe; China; India ...

A flywheel based energy storage apparatus includes a housing and a hub-less flywheel mounted within the housing. The hub-less flywheel has a mass which is shifted radially outwards from a central axis of the hub-less flywheel thus increasing the energy density of the apparatus. The flywheel includes an outer axially extending annular surface, an inner axially ...

A compact energy storage system includes a high speed rotating flywheel and an integral motor/generator unit. The rotating components are co ... Flywheel based energy storage system Number of patents in Portfolio can not be more than 2000 ... Create a Patent Buddy account today and discover why over 250,000 people currently use Patent Buddy as ...

The anatomy of a flywheel energy storage device. Image used courtesy of Sino Voltaics . A major benefit of a flywheel as opposed to a conventional battery is that their expected service life is not dependent on the number of charging cycles or age. The more one charges and discharges the device in a standard battery, the more it degrades.

Amber Kinetics is a leading designer and manufacturer of long duration flywheel energy storage technology with a growing global customer base and deployment portfolio. Key Amber Kinetics Statistics. 15 . Years.

Flywheel energy storage patent

Unsurpassed experience designing and deploying the world's first long-duration flywheel energy storage systems.

Flywheel Energy Storage Systems (FESS) work by storing energy in the form of kinetic energy within a rotating mass, known as a flywheel. Here's the working principle explained in simple way, Energy Storage: The system features a flywheel made from a carbon fiber composite, which is both durable and capable of storing a lot of energy.

7. The flywheel energy storage system according to claim 1, the at least one electric motor assembly further comprises a second motor rotor, the second motor rotor is fixed on an annular internal wall of the annular part and is located in the at least one cavity, wherein another part of the at least one separator located between the second motor rotor and the ...

An electrical energy storage system for supplying power to a load comprises a plurality of flywheel energy storage systems, each supplying a power output signal, and a connector circuit. The connector circuit connects the flywheel energy storage systems to the load, but the flywheel energy storage systems are not connected to each other.

Flywheel energy storage battery systems are a very old technology, but they have gained new life thanks to recent developments in rotary motors, including non-contact magnetic bearings and permanent magnet motors/generators using new strong magnetic materials (NdFeB and SmCo). The flywheel energy storage battery system is mainly composed of an

An electrical energy storage system for supplying power to a load comprises a plurality of flywheel energy storage systems, each supplying a power output signal, and a connector circuit. The connector ... View Patent Images: Download PDF 6614132 . US Patent References: 6274950: Battery communication system: 2001-08-14: Gottlieb et al. 307/66:

Today, flywheel energy storage systems are used for ride-through energy for a variety of demanding applications surpassing chemical batteries. A flywheel system stores energy mechanically in the form of kinetic energy by spinning a mass at high speed. Electrical inputs spin the flywheel rotor and keep it spinning until called upon to release ...

Beacon Power is a pioneer and technology leader in the design, development, and commercial deployment of grid-scale flywheel energy storage. Beacon's proprietary designs are at the heart of a cost-effective and durable energy storage device that enables grids to operate more reliably.

A spherical flywheel is described and specified that stores rotational energy more efficiently than cylindrical flywheels. The spherical flywheel is composed of multiple layers of material with the densest material at the surface. The flywheel surface is dimpled with a pattern similar to golf ball surfaces, to minimize aerodynamic drag.

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