

# **Flywheel energy storage s position in the industry chain**





## Overview

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The global flywheel energy storage market was valued at USD 1.3 billion in 2024 and is expected to reach a value of USD 1.9 billion by 2034, growing at a CAGR of 4.2% from 2025 to 2034. Flywheels are used for uninterruptible power supply (UPS) systems in data centers due to their instant response.

The flywheel energy storage market is projected to grow from USD 1.4 billion in 2025 to USD 2.0 billion by 2035, at a CAGR of 4.2%. Utility will dominate with a 46.8% market share in 2025. The flywheel energy storage market is projected to reach USD 1.3 billion in 2025 and expand to USD 2.0 billion.

The global flywheel energy storage market size was valued at USD 325.33 million in 2024. The market is projected to grow from USD 351.94 million in 2025 to USD 564.91 million by 2032, exhibiting a CAGR of 6.99% during the forecast period. Asia Pacific dominated the global market with a share of.

The global flywheel energy storage market is projected to rise from USD 1.46 billion in 2025 to approximately USD 1.81 billion by 2034, registering a CAGR of 2.38%. The market is driven by rising demand for uninterrupted power supply and grid stabilization, especially across Europe, which accounted.

Flywheel Energy Storage Systems by Application (UPS, Electricity Grid, Transportation), by Types (Less than 500KW, 500-1000KW, More than 1000KW), by North America (United States, Canada, Mexico), by South America (Brazil, Argentina, Rest of South America), by Europe (United Kingdom, Germany).



Energy storage flywheel systems are gaining traction due to their ability to deliver rapid energy discharge, high cycle life, and minimal environmental impact. Renewable energy integration stands as the largest driver, particularly in wind and solar power applications. Flywheels buffer intermittent. What are Flywheel Energy Storage Systems?

Flywheel Energy Storage Systems are interesting solutions for energy storage, featuring advantageous characteristics when compared to other technologies. Research focuses on cost aspects, system reliability, and energy density improvement for these systems. In this context, a novel shaftless outer-rotor layout is proposed.

What is the demand for flywheel energy storage systems?

Flywheel energy storage systems are considered essential in these investments, allowing better utilization of existing and new energy resources. Therefore, the energy sector's considerable investments are projected to propel the regional demand for flywheel energy storage systems in the coming seven years.

Which countries are adopting flywheel energy storage technology?

China, South Korea, Japan, India, and the Philippines are largely adopting flywheel energy storage technology owing to its high efficiency and long service life advantage. The high demand for continuous electricity and rising investments in storage technology drive the market growth.

What is China's first flywheel & battery storage project?

When finished, it will be China's first flywheel + battery storage project used in frequency regulation. The project has a budget of USD 4.6 million (33.72 million yuan) using a 5MW/5MWh BESS and a 2MW/0.4MWh flywheel storage system.

How much does a hybrid battery-flywheel storage system cost?

October 2022: ABB and S4 Energy recently installed a hybrid battery-flywheel storage infrastructure in the Netherlands. The project features a 10 MW battery system and a 3 MW flywheel system and can supposedly offer a leveled cost of storage ranging between USD 0.020/kWh and USD 0.12/kWh.

What is Candela New Energy's first magnetic levitation flywheel production line?



February 2023: Candela New Energy's first megawatt-class magnetic levitation flywheel production line was successfully put into operation in Julongwan Intelligent Equipment Industrial Park, Foshan City. The first set of 1MW/35kWh magnetic levitation flywheel has been positively rolled off the production line.



## Flywheel energy storage s position in the industry chain



### The Next Frontier in Energy Storage , Amber Kinetics, Inc

Leading Provider in Dispatchable Generation Amber Kinetics is a leading designer of flywheel technology focused the energy storage needs of the modern grid. By providing multiple cycles ...

### Flywheel Energy Storage Market , Global Market Analysis Report

13 ????· Flywheel Energy Storage Market Flywheel Energy Storage Market Size and Share Forecast Outlook 2025 to 2035 The flywheel energy storage market is projected to grow from ...



### Flywheels in renewable energy Systems: An analysis of their role ...

This paper presents an analytical review of the use of flywheel energy storage systems (FESSs) for the integration of intermittent renewable energy sources into electrical ...

### Global Flywheel Energy Storage Market - Industry Reports

Report Scope The Flywheel Energy Storage market size, estimations, and forecasts are provided in terms of revenue (\$ millions),



considering 2023 as the base year, with history and forecast ...

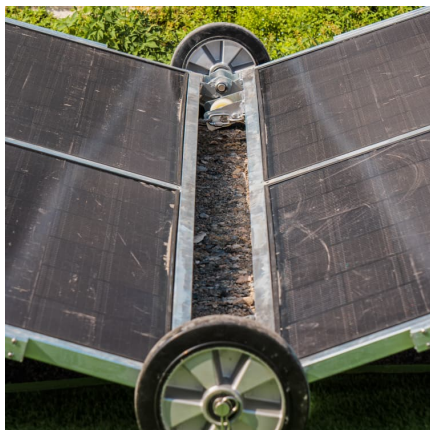


### Energy Storage Flywheel Market

What supply chain vulnerabilities or material dependencies are unique to the flywheel energy storage industry? The flywheel energy storage industry faces distinct supply chain ...

### Flywheel energy storage

Opening Smart grids, clean renewable-energy power plants, and distributed generation, which are the main pillars of future clean energy systems, strongly require various ...



### [Could Flywheels Be the Future of Energy Storage?](#)

Flywheels are one of the world's oldest forms of energy storage, but they could also be the future. This article examines flywheel technology, its ...



### **Flywheel Energy Storage Market Opportunity, Growth Drivers, Industry**

The flywheel energy storage market is gaining traction across a variety of sectors. Notably, data centers, which rely heavily on constant power supply, are turning to ...



### **Flywheel Energy Storage Systems Market Insights 2025, ...**

Flywheel energy storage systems represent advanced mechanical energy storage technologies that store kinetic energy in rotating masses, providing rapid-response ...

### [Flywheel Energy Storage: Challenges in Microgrids](#)

In the last decade, cutting-edge technologies in the field of energy storage have become more popular in the power market. These technologies provide fast energy transfers. Recently, the ...



### **Flywheel Energy Storage Industry Standards: What You Need to ...**

Imagine a world where energy storage works like a high-speed merry-go-round--spinning faster to store power and slowing down to release it. That's flywheel energy ...



### [Flywheel Energy Storage Market Statistics, 2025](#)

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The flywheel energy storage market size crossed USD 1.3 billion in 2024 and is expected to register at a CAGR of 4.2% from 2025 to 2034, driven by rising ...



### [Development and prospect of flywheel energy storage ...](#)

With the rise of new energy power generation, various energy storage methods have emerged, such as lithium battery energy storage, flywheel energy sto...

### [Flywheel Energy Storage Market Size, SWOT, Growth](#)

Unlock detailed market insights on the Flywheel Energy Storage Market, anticipated to grow from USD 1.2 billion in 2024 to USD 5.0 billion by 2033, maintaining a CAGR of 18.0%. The analysis ...



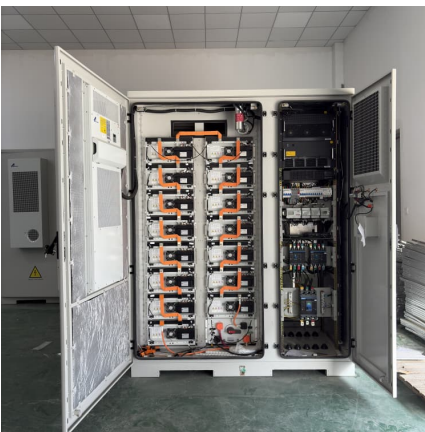


### **A review of flywheel energy storage rotor materials and structures**

The flywheel is the main energy storage component in the flywheel energy storage system, and it can only achieve high energy storage density when rotating at high ...

### [Secure energy storage and management systems - Torus](#)

Our systems combine chemical batteries--Torus Pulse--and flywheel energy storage--Torus Spin--to provide significant performance advantages over chemical-only solutions.

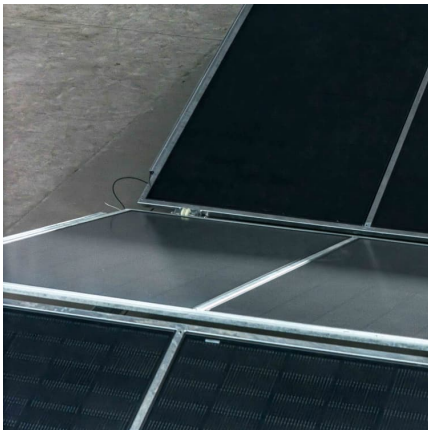


### **Flywheel Energy Storage System Market Report: Industry Size, ...**

Flywheel Energy Storage System Market Strategy, Price Trends, Driving Factors, Challenges, and Opportunities to 2034 The Flywheel Energy Storage System market is poised for substantial ...

### [Flywheel energy storage industry chain analysis](#)

Other opportunities are new applications in energy harvest, hybrid energy systems, and flywheel's secondary functionality apart from energy storage. The authors declare that they have no ...

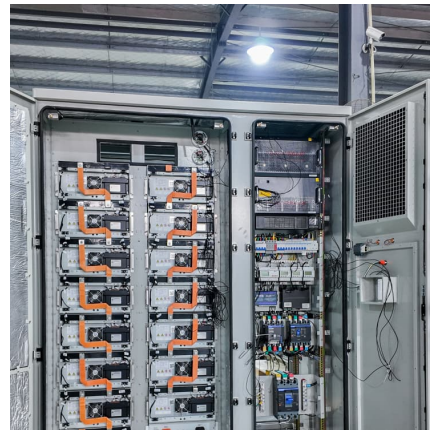


### **Global Flywheel Energy Storage Market 2024 by Company, ...**

Company Analysis: Report covers individual Flywheel Energy Storage players, suppliers, and other relevant industry players. This analysis includes studying their financial performance, ...

### **Malaysia Commercial Flywheel Energy Storage System Market ...**

The Malaysia commercial flywheel energy storage system market is characterized by several distinct types, each designed to meet specific energy storage needs. ...



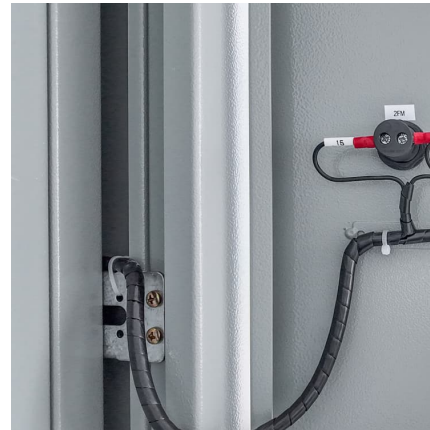
### [Grid-Scale Flywheel Energy Storage Plant](#)

Flywheel systems are kinetic energy storage devices that react instantly when needed. By accelerating a cylindrical rotor (flywheel) to a very high speed and maintaining the energy in ...



### Flywheel Energy Storage Systems and their Applications: A ...

Flywheel energy storage systems are suitable and economical when frequent charge and discharge cycles are required. Furthermore, flywheel batteries have high power density and a ...



### Flywheel Energy Storage Revenue , Key Players Market Share & position

Undoubtedly, Rapid Industrialisation and High Demand for Back-Up Power Sources such as Uninterrupted Power Supply in Emerging Countries is the most promising market promoter, ...

### Regenerative drives and motors unlock the power of flywheel energy

S4 Energy, a Netherlands-based energy storage specialist, is using ABB regenerative drives and process performance motors to power its KINEXT energy-storage ...



### The Next Frontier in Energy Storage , Amber Kinetics, ...

Leading Provider in Dispatchable Generation Amber Kinetics is a leading designer of flywheel technology focused the energy storage needs of the ...



### A review of flywheel energy storage systems: state of the art ...

This paper gives a review of the recent Energy storage Flywheel Renewable energy Battery Magnetic bearing developments in FESS technologies. Due to the highly ...



### [Flywheel energy storage industry chain map](#)

What is a flywheel energy storage system? areas of flywheel energy storage systems. Power failures can cause huge losses in businesses and commercial workstations. Flywheel UPS ...



### Automotive Energy Storage System XX CAGR Growth Analysis ...

13 ?????· The global Automotive Energy Storage System (AESS) market is poised for substantial growth, projected to reach an estimated \$55,000 million by the end of 2025, with a ...





### [The Status and Future of Flywheel Energy Storage](#)

Outline Flywheels, one of the earliest forms of energy storage, could play a significant role in the transformation of the electrical power system into one that is fully sustainable yet low cost. ...

### **Flywheel Energy Storage Systems Industry Research Report 2023**

This report aims to provide a comprehensive presentation of the global market for Flywheel Energy Storage Systems, with both quantitative and qualitative analysis, to help readers ...



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