

## SolarTech Power Solutions

# Safety of flywheel



## Overview

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What makes a safe flywheel system?

Robust system design, in combination with the use of certified critical materials, relevant quality control measures and documentation, are the basis for the construction of safe flywheel systems. These can be certified by appropriate independent parties as in the manufacture of many other products.

Are flywheel energy storage systems safe?

While supercaps and batteries have no moving parts and potential danger lies primarily in possible electric shock or fire due to a short circuit, a flywheel energy storage system requires a different, comprehensive safety concept. The main problem with FESS is that the entire kinetic energy can be released within a very short time.

What is a flywheel energy storage system (fess)?

Flywheel Energy Storage Systems (FESS) play an important role in the energy storage business. Its ability to cycle and deliver high power, as well as, high power gradients makes them superior for storage applications such as frequency regulation, voltage support and power firming.

Are stornetic flywheels safe if a rotor burst?

In addition to the Sandia guidelines (4), Stornetic also believes that flywheels up to a certain energy content can be contained and mounted safely even in the event of a severe rotor burst. These designs offer additional safety opportunities to those of the Sandia recommendations.

What is the energy content of a flywheel?

The energy content of a 1.5 kWh flywheel is therefore equivalent to the kinetic energy of a car traveling at over 300 km/h. The greatest danger is the breakage of the rotor and the high energy of the fragments due to the

extreme rim speeds.

What are experimental flywheels used for?

It must be remembered at this point that the experimental test flywheels are only used as “projectiles” for the examination of the burst housings and represent sacrificial parts. In this case, the strength of the housing, not the rotor, will be examined.

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