

CASE STUDY

REO ensures uninterrupted enjoyment in theme parks



REO BW 155 resistors deliver maximum safety and reliability in amusement park ride system



Initial Situation / Challenge

While visitors to amusement parks focus on enjoyment, for operators the key priorities are functionality and safety. A major theme park was faced with repeated failures of the braking resistors previously installed in its rides by another manufacturer.

Braking resistors play a critical role in amusement rides in terms of safety and reliability, as they ensure safe and controlled braking by reliably converting excess energy.

These issues occurred after only a short period of operation with the competitor's resistors:

- Low temperature resistance due to inferior ceramic materials
- Poor welding quality leading to loose coils
- Deliveries outside specification
- Increased fire risk under high loads
- Vibration-sensitive design

These shortcomings not only caused recurring failures but also resulted in increased maintenance effort and safety risks – an unacceptable situation for a renowned theme park.



Objective

The theme park required a solution that would not only eliminate the above deficiencies but also meet the high standards for safety and reliability in a highly demanding environment.

Key requirements:

- High thermal and mechanical resilience
- Compliance with IP65 protection class
- Stable and consistent performance over long operating periods
- Easy integration into existing ride systems
- Compliance with international safety standards

Summary

Application: Braking resistors in amusement park ride system

Industry: Theme parks

Country: USA

Product: REO BW 155 brake resistor range

Objective: Increase operational safety and reduce failures

Result: Maximum reliability and improved efficiency, zero failures



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REO sichert ungetrübte Freude im Freizeitpark



Solution

REO utilised its proven BW 155 resistor series, already successfully deployed in numerous applications and developed a customised solution with the following technical specifications:

- Air cooling for efficient heat dissipation
- High power density meeting the requirements for compactness and performance
- Optional anodised surface to reduce operating temperatures and increase corrosion resistance
- Use of high-quality materials and additional insulation for maximum temperature resistance
- Vibration-resistant design specifically for amusement ride applications
- Precision-manufactured coils for consistent performance
- Low-resistance design, as the required resistance value was outside the standard range
- Enhanced safety features, such as an internal thermal switch with a high protection rating, which minimise the risk of fire
- Customised mounting system tailored to existing installation dimensions and fixing points

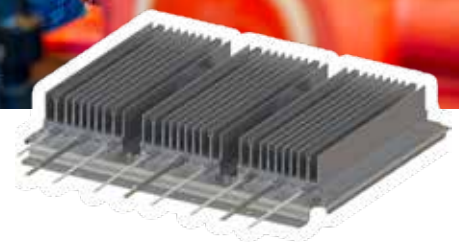
During development, REO supported the customer with calculations and simulations regarding strength determination as well as thermal behaviour and limit values.



Results

The results following the switch to REO braking resistors were clear:

- 100% reliability – no failures since implementation of the REO BW 155
- Significantly reduced maintenance requirements and extended service intervals
- Increased operational reliability, maximising ride availability
- Satisfied operators: improved guest experience due to elimination of ride downtime



Conclusion

This project clearly demonstrates that REO components deliver value far beyond traditional industrial applications. Through technical precision, quality focus and close collaboration, REO has ensured that tens of thousands of visitors can enjoy safe and unforgettable ride experiences every year. The project exemplifies REO's expertise in safety-critical applications, where reliability and engineering excellence make the decisive difference.

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FAQ's

What is the function of a braking resistor, particularly in amusement rides?

A braking resistor converts excess electrical energy into heat, enabling controlled and safe braking while protecting electronic components from overload. In roller coasters and amusement rides, it is a key safety component that ensures reliable deceleration and protects drive systems.

Why are braking resistors safety-critical in theme parks?

Amusement rides are exposed to high level of vibration, temperature peaks and mechanical stress. A failure can lead to operational down-time or safety risks. Braking resistors must therefore be particularly robust, temperature-resistant and reliable. Only in this way can excess energy be converted into heat and dangerous overvoltage prevented. In addition, the braking resistor ensures safe and controlled deceleration of the rides. A high protection rating for the component is of great importance here.

What advantages do REO braking resistors offer?

Thanks to REO's many years of experience in the development and manufacture of braking resistors, they offer:

- High operational reliability due to their robust construction
- Excellent heat dissipation and high pulse load capability
- Compact design requiring minimal installation space
- Long service life with low maintenance operation
- Short-circuit proof and self-extinguishing design
- High shock and vibration resistance
- Available in air- and liquid-cooled versions
- Protection ratings up to IP69K
- Available with UL certification

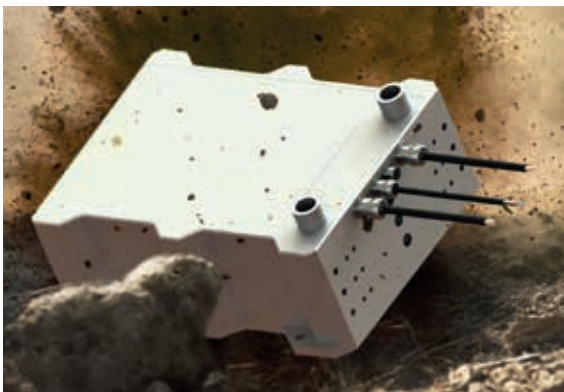
Can REO braking resistors be customised for specific requirements?

Yes, REO braking resistors can be customised to meet specific application requirements in terms of resistance value, power, cooling concept, surface treatment and mounting design.

What other applications are REO braking resistors suitable for?

REO braking resistors are used in a wide range of applications, including:

- Industrial and drive technology
- E-mobility
- Cranes and lifting systems
- Lifts and escalators
- Wind energy systems
- Heavy-duty applications



Information & Contact



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