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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 18169-2023

Specifications of amusement rides bumper car category

碰碰车类游乐设施通用技术条件

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Foreword

This document was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 September 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 18169-2023 covers bumper car amusement rides, from the design of the machine to

the documents that travel with it. General requirements tie the ride back to GB 8408 and reach across design, manufacture, installation, modification, repair, testing and inspection. The technical clause is the body of the document: the frame, which is metal and must carry no exposed sharp edges, corners, burrs or dangerous protrusions where riders put their hands; the ride system; the electrical control system, which on these machines distributes power through surfaces the public stands beside; the parking lot; the surface protection, meaning the bumper ring that turns a collision into a nudge; emergency rescue; the complete machine; and the requirements that apply separately to each type of bumper car, the pole-mounted type among them. Test methods set out the inspection plans the manufacturing and installing organisations draw up against the design documents, and the specific procedure for each item. The last clause fixes accompanying documents, product nameplate, marking, packaging, transportation and storage. The detail exists because this is a ride whose whole purpose is deliberate collision, driven by untrained members of the public and often by children. For ride manufacturers, park and arcade operators, installers and the inspection bodies that release the ride into service.

This Document specifies the overall requirements, technical requirements, test methods, random documents, product nameplates, marking, packaging, transportation and storage of amusement rides bumper car.

This Document applies to the design, manufacturing, installation, modification, maintenance,

testing, inspection and use management of amusement rides bumper car.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates

indicated are applicable to this Document; for the undated documents, only the latest version

(including all the amendments) is applicable to this Document.

GB/T 191 Packaging - Pictorial Marking for Handling of Goods

GB 4706.1-2005 Household and Similar Electrical Appliances - Safety - Part 1: General Requirements

GB 8408 Large-scale amusement device safety code

GB/T 8923 (all parts) Preparation of steel substrates before application of paints and

related products-Visual assessment of surface cleanliness

GB/T 9286 Paints and varnishes - Cross cut test for films

GB/T 13384 General specifications for packing of mechanical and electrical product

GB/T 13912 Metallic coatings - Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods

GB 14166-2013 Safety-belts, restraint systems, child restraint systems and ISOFIX child restraint systems for occupants of power-driven vehicles

GB/T 20050-2020 Inspection and testing specifications of large-scale amusement device - General principles

GB/T 20306 Amusement devices terminology

GB/T 34371 Risk assessment for amusement ride - General principles

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 20306 and the following apply.

3.1 Pole-mounted bumper car

A bumper car that is fed by sliding (or rolling) contact between electrical components and the

sky-net, driven by electrical energy, and runs in a fixed parking lot.

3.2 Floor feeding bumper car

A bumper car that is fed by sliding (or rolling) contact between electrical components and the

floor, driven by electrical energy, and runs in a fixed parking lot.

3.3 Accumulator feeding bumper car

A bumper car that uses its own energy storage unit to provide power and runs in a fixed parking

lot.

3.4 Energy storage unit

The minimum energy storage system that consists of a battery pack, a battery management

system and a power conversion system connected to it.

4 General Requirements

4.1 The design, manufacturing, installation, modification, repair, testing and inspection, random

documents and complete product nameplates of amusement rides bumper car shall meet the

relevant requirements of GB 8408 and this Document.

4.2 Risk assessment shall be carried out in accordance with GB/T 34371 during the design stage

of amusement rides bumper car. Risk assessment shall also be carried out for amusement rides

bumper car that needs to be modified or that continue to be used after the designed service life

of the whole machine has expired.

5 Technical Requirements

5.1 Machinery and structure

5.1.1 The frame shall be made of metal material.

5.1.2 There shall be no exposed sharp edges, corners, burrs, or dangerous protrusions in any

part of the bumper car that is accessible to passengers.

5.1.3 The bumper car shall be able to move forward, backward, turn left, and turn right.

5.1.4 The wheel axle shall be designed for infinite life.

5.1.5 The wheel device shall be flexible in rotation, easy to lubricate and repair.

5.1.6 A collision buffer device shall be installed on the steering wheel. The collision buffer device can be made of sponge or foam material.

5.1.7 Steering wheel operation shall be light and effortless. Under full-load conditions, the steering operation resistance at any point on the steering wheel shall be no greater than 40N.

5.1.8 The steering mechanism shall be flexible and reliable; and there shall be no sticking or