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

GB/T 32383-2020

**General technical specification for linear motor vehicles for
urban rail transit**

城市轨道交通直线电机车辆通用技术条件

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 32383-2015 "Urban Rail Transit Linear Motor Vehicles". Compared with GB/T 32383-2015, the main The technical changes are as follows:

- Modified the expression of "linear motor vehicle" definition (see 3.1, 3.1 in.2015 version);
- Modified the power supply method (see 4.3.1,.2015 version 4.3.1);
- Modified the power supply voltage requirements (see 4.3.2,.2015 version 4.3.2);
- Modified the expression of the test load of the car body (see 8.1.3,.2015 version 8.1.3);
- Added "door glass should use safety glass that meets the requirements of GB 18045"

(see 8.4.4);

--- Added "the fasteners on the bogie should have reliable anti-loosening measures" (see 9.3);

--- Added "Bogie design should meet the overall lifting function" (see 9.4);

--- Modified the welding of the frame (see 9.6, 9.4 of the 2015 edition);

--- Modified the strength design and test of the frame (see 9.7, 9.5 in the 2015 edition);

--- Added "The design life of bogie frame should not be less than 3 million km or 30 years" (see 9.8);

1 Scope

China's national general technical specification for the linear motor vehicles used on urban rail transit systems, and the current edition of GB/T 32383, replacing the 2015 edition. It specifies the service conditions, the vehicle types, the general provisions, the train formation, the car body and interior, the bogie, the brake system, the heating, ventilation and air conditioning, the electric drive, the auxiliary power supply, the train control and communication network, the passenger information system, the safety facilities, the electromagnetic compatibility, the testing and acceptance, and the marking, transport and warranty period. A linear motor metro is an unusual kind of railway. Instead of a rotary motor turning the axles, each bogie carries a flat linear induction motor whose stator faces a continuous aluminium reaction plate laid along the track between the rails; the motor pushes directly against that plate, and the wheels only carry and guide the vehicle rather than transmitting tractive effort. That has two consequences that decide where the system is used. Because traction does not depend on adhesion between wheel and rail, the vehicle climbs gradients far steeper than a conventional metro can - which allows a line to follow the terrain and to rise and fall between stations rather than being kept level. And because there is no rotary motor or gearbox under the floor, the bogie is much shallower, so the tunnel section is smaller and cheaper to bore. The 2020 revision is largely a bogie revision: it adds a design life of not less than three million kilometres or thirty years for the frame, requires anti-loosening measures on fasteners, a whole-bogie lifting capability, an interface for wheel reprofiling without dropping the wheelset, height adjustment for the linear motor, and on-line monitoring of bearing temperature or vibration. Issued on 31 March 2020 and in force since 1 October 2020.

This standard specifies the operating conditions, vehicle types, general regulations, vehicle types and train formation of linear motor vehicles for urban rail transit, Car body and interior equipment, bogies, braking systems, heating, ventilation and air conditioning devices,

electric drive systems, auxiliary power supply systems, train control And communication network, communication and passenger information display system, safety facilities, electromagnetic compatibility, testing and acceptance, signs, transportation and quality assurance period. This standard applies to linear motor vehicles (hereinafter referred to as "vehicles") supported by steel wheels and rails for urban rail transit.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For the cited documents without date, the latest version (including all amendments) applies to this document.

GB/T 1402 Rail Transit Power Supply System Voltage

GB/T 4208 enclosure protection level (IP code)

GB 4351.1 Portable fire extinguishers Part 1. Performance and structural requirements

GB/T 5599 Code for Dynamic Performance Evaluation and Test Qualification of Railway Vehicles

GB/T 5914.2 Configuration of front, side windows and other windows of locomotive cab

GB/T 6771 Regulations on fire prevention and fire prevention measures for electric locomotives

GB/T 10411 Urban Rail Transit DC Traction Power Supply System

GB/T 11944 insulating glass

GB 14892 Urban Rail Transit Train Noise Limits and Measurement Methods

GB/T 14894 Inspection and test rules for urban rail transit vehicles after assembly

GB 18045 Safety glass for railway vehicles

GB/T 21563 Shock and vibration test of rail transit rolling stock equipment

GB/T 24338.3 Electromagnetic compatibility of rail transit Part 3-1. Locomotive trains and complete vehicles