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**NATIONAL STANDARD OF THE
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GB/T 47231-2026

**Performance requirements and test methods for industrial
heavy-duty mobile robots**

工业重载移动机器人性能要求及测试方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Robotics Standardization Technical Committee (SAC/TC591). This document was drafted by: Shenyang Siasun Robot & Automation Co., Ltd., Qingdao Siasun Robot & Automation Co., Ltd., and Jikefa. Zhan Technology Co., Ltd., Beijing Institute of Mechanical

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1 Scope

GB/T 47231-2026 is the Chinese national standard covering the heavy AGV - a vehicle carrying tonnes through a working plant, with its positioning accuracy under load, its braking distance, its stability and its obstacle detection at a mass where stopping is not immediate. First edition, in force since 1 September 2026, with the logistics robot electrical safety standards GB/T 47494-2026 and GB/T 47495-2026. It was issued on 27 February 2026 and has been in force since 1 September 2026, as a first edition. The document is under the responsibility of the China Machinery Industry Federation. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the performance requirements and test conditions for heavy-duty industrial mobile robots and describes the corresponding test methods. This document applies to the design and inspection of heavy-duty industrial mobile robots.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 10827.1-2014 Safety requirements and verification for industrial vehicles - Part

1. Self-propelled industrial vehicles (excluding driverless vehicles) (Vehicles, telescopic boom forklifts and transport vehicles)

GB/T 10827.4-2023 Safety requirements and verification for industrial vehicles - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 42830, as well as the following terms and definitions, apply to this document.

3.1 Industrial heavy-duty mobile robot Trackless navigation industrial mobile robots with a rated load of not less than 10t, used indoors, outdoors, or in a mixed manner.

Note. If it is a composite robot, it only involves the mobile platform part and does not include the manipulator.

3.2 Mobile robots that are self-controlled and mobile, and are used in industrial automation.

3.3 Stopping accuracy The deviation between the actual position reached and the target position when the robot stops.

3.4 Repeatability When a robot repeatedly stops at the same target position from the same

direction under the same conditions, the actual stopping position distribution is discrete degree. [Source: GB/T 30030-2023, 3.4.8, with modifications]

4 Unmanned industrial vehicles and their systems

GB/T 20721-2022 General Technical Conditions for Automated Guided Vehicles

GB/T 27693 Measurement Method for Safety Noise Radiation from Industrial Vehicles

GB/T 38834.1-2020 Performance Specifications and Test Methods for Service Robots - Part