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

GB/T 45162.1-2024

**Warehouse logistics equipment - Specification for reliability
test - Part 1: Conveying and sorting equipment**

物流仓储设备 可靠性试验规范 第1部分：输送分拣设备

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. This document is

part 1 of GB/T 45162 "Reliability Test Specification for Logistics and Warehousing Equipment". GB/T 45162 has been published. The following parts.

1. Conveying and sorting equipment. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee for Standardization of Logistics and Warehousing Equipment (SAC/TC499). This document was drafted by: Kunchuan Intelligent Technology Co., Ltd., Beijing Hoisting and Conveying Machinery Design and Research Institute Co., Ltd., South China Xinhai (Shenzhen) Technology Co., Ltd., Noli Intelligent Equipment Co., Ltd., Kunshan CIMC Logistics Automation Equipment Co., Ltd., Damon Technology Group Co., Ltd., Putian Logistics Technology Co., Ltd., Zhejiang Kailesi Technology Group Co., Ltd., Shanghai Jingxing Warehousing Equipment Co., Ltd. Engineering Co., Ltd., Wuxi Zhongding Integrated Technology Co., Ltd., Beijing Institute of Technology (Beijing) Technology Development Co., Ltd., Shanghai Oulide Logistics Technology Co., Ltd., Hefei Jingsong Intelligent Technology Co., Ltd., Jiangmen Granda IoT Equipment Co., Ltd., Wuxi Hongyi Intelligent Technology Co., Ltd. Co., Ltd., Jiangsu Baoxiang Intelligent Technology Co., Ltd., Qingdao Fudingtai Intelligent Technology Co., Ltd., Jiangsu Feida Baokai Electric Co., Ltd., Hebei Bokelai Intelligent Equipment Technology Co., Ltd. The main drafters of this document are. Fang Jinming, Zhou Lingli, Wang Qiao, Hong Jianrong, Zhu Baochang, Xue Shule, Tang Xiaoming, Chen Lin, Bao Lixin, Ma Lixin, Huang Xi, Gai Yuchun, Wan Yinghe, Liu Ping, Zou Chaopu, Yin Daojun, Fu Yongqiang, Xu Chao, Xi Qing, Xie Guobao, Tang Hui, Hua Chuanwei, Du Renjie.

Reliability is the most important indicator for measuring the quality of logistics and warehousing equipment. It is necessary to define the reliability of logistics and warehousing equipment from the standard level. Standardize the definition, testing, and recording of equipment, and put forward reliability requirements, so as to improve the quality of equipment and promote the technical level of logistics and warehousing equipment. promote. GB/T 45162 aims to establish standards and requirements that are generally applicable to reliability testing of logistics and warehousing equipment, and is intended to consist of three parts.

1. Conveying and sorting equipment. The purpose is to establish the conveying equipment and sorting equipment applicable to logistics warehousing equipment in normal The basic requirements and methods for reliability testing under working conditions are introduced to effectively carry out reliability testing.

2. Storage equipment. The purpose is to establish the storage equipment in the logistics warehousing equipment under normal working conditions The basic requirements and methods of reliability testing are introduced to effectively carry out reliability testing.

3. Storage system. The purpose is to establish the basic conditions for reliability testing of

storage systems under normal working conditions. These requirements and methods are used to effectively conduct reliability tests. One of the tasks in formulating GB/T 45162 is to provide effective input for the reliability of logistics and warehousing equipment. Quality varies. Reliability, as one of the characteristics of product quality, is an important means to improve product competitiveness. In view of this, it is necessary to formulate GB/T 45162 was established to help establish a reliability test standard for logistics and warehousing equipment that meets domestic needs, standardize test procedures, and improve test Efficiency, shorten test cycle and reduce test cost. The formulation of GB/T 45162 focuses on the test conditions, methods, and records of the reliability of logistics and warehousing equipment. Reliability is clearly defined, test conditions and methods are unified, and data collection and analysis are standardized to verify whether the equipment meets quality standards throughout its life cycle. The formulation of GB/T 45162 will further standardize the promotion and implementation of the reliability of logistics and warehousing equipment. Fundamentally improve equipment quality and promote the high-quality development of my country's logistics and warehousing equipment. Reliability test specification for logistics and warehousing equipment Part

1 Scope

GB/T 45162.1-2024 is Part 1 of the Chinese series on reliability testing of warehouse logistics equipment, and covers conveying and sorting equipment. A sorter in a Chinese parcel hub handles tens of thousands of items an hour and cannot be stopped without backing up the whole facility, so the number that matters is not throughput at commissioning but mean time between failures at that throughput - a quantity that vendors have quoted on incompatible bases. The standard sets the test method, the sampling principles and quantities, the test conditions covering the environment, the equipment, the test goods, the personnel and the tools, and then the test methods proper: the fault-free working time, the reliability indicators derived from it, the classification of failures and the data recording, together with the evaluation of the results and the test report. It takes effect on 1 July 2025.

This document defines the terms related to the reliability of conveying and sorting equipment in logistics warehousing equipment, establishes the general principles of reliability testing, and stipulates The test conditions, test methods, test items, test records, test reports are given, and the sampling and test methods are described. This document is applicable to the reliability test of conveying and sorting equipment such as conveyors, elevators and sorters.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date,

only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 2900.99 Credibility of electrical terminology

GB/T 35738 Classification and terminology of transportation, sorting and auxiliary equipment in logistics warehousing and distribution centers

GB/T 43910 Terminology for logistics and warehousing equipment

3 Terms and definitions

The terms and definitions defined in GB/T 2900.99, GB/T 35738 and GB/T 43910 and the following terms and definitions apply to this document.

3.1 reliability The ability to complete specified functions under specified conditions and within a specified time.

3.2 Reliability test Tests to measure and quantify equipment reliability (3.1).

3.3 Degree of reliability The probability of completing the specified function under specified conditions and within a specified time. [Source: GB/T 2900.99-2016, 192-05-05, modified]

3.4 The average working time between two consecutive failures (3.7). [Source: GB/T 43910-2024, 3.4.28, modified]

3.5 mean time to repair The mean time required to restore specified performance from the detection of a fault (3.7). [Source: GB/T 23568.1-2009, 3.7]