

ICS 53.08

CCS J83



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

GB/T 35739-2017

**Continuous vertical conveyors for unit goods in logistics
warehousing and distribution centres**

物流仓储配送中心成件物品连续垂直输送机

Issued on: December 29, 2017

Implemented on: July 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

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Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2009. This document was proposed by China Machinery Industry Federation. This document shall be under the jurisdiction of National Technical Committee on Logistics Warehousing Equipment of Standardization Administration of China (SAC/TC 499). Main drafting organizations of this document. Zhejiang Damon Technology Co., Ltd., Beijing Hoisting and

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Continuous vertical conveyor for unit goods in logistics warehousing distribution center

1 Scope

China's national standard for continuous vertical conveyors handling unit loads in warehouses and distribution centres, applied together with Amendment 1 of 2021. It specifies the terms and definitions, the types and basic parameters, the technical requirements, the test methods, the inspection rules and the marking, packaging and transport. A continuous vertical conveyor moves cartons and totes between floors on a chain of carriers that never stops, taking a load at the bottom and delivering it at the top without the batching a lift imposes. That distinction is the whole point: a goods lift moves one load at a time and its throughput is limited by the round trip, whereas a continuous conveyor's throughput is limited only by how closely the carriers follow one another. In a distribution centre sorting thousands of parcels an hour across several floors, that difference decides the building's layout. The requirements concentrate on what happens when a load is taken on or released while everything is still moving, which is where these machines jam and where people get hurt.

This document specifies the terms, types, basic parameters, technical requirements, test methods, inspection rules, marks, packaging, transportation and storage for continuous vertical conveyor for unit goods. This Standard applies to the conveyors that convey the unit goods in layers along the vertical direction (hereinafter referred to as "conveyors"). Other continuous vertical conveyors can use this Standard as reference.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 191, Packaging and storage marks

GB/T 700-2006, Carbon structural steels

GB/T 755, Rotating electrical machines - Rating and performance

GB/T 1243, Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets

GB/T 4942.1-2006, Degrees of protection provided by the integral design of rotating

electrical machines (IP code) - Classification

GB 5226.1-2008, Electrical safety of machinery - Electrical equipment of machines - Part

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 unit goods A single regular item that can be conveyed or a single conveyed item formed in a container.

3.2 carrying device A device capable of carrying an item and operating with a lift traction part.

3.4 conveying rate The number of pieces conveyed in a unit time.

4 Types and basic parameters

4.1 Types Conveyors are divided into type Z, type C, type E according to the conveying method, as shown in Figure 1.

4.2.1 Conveying speed The conveying speed shall preferably use the values specified in Table 1.

4.2.2 Width of carrying device The width of the carrying device shall preferably be the value specified in Table 2.

5.1 Working environment conditions

5.1.1 The working environment temperature is $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$.

5.1.2 The altitude of installation and use site shall not exceed 1000m. When it exceeds 1000m, the capacity of the motor shall be verified according to the provisions of GB/T 755.

5.2 Overall performance

5.2.1 The conveyor shall run smoothly without abnormal noise.

5.2.2 When the conveyor is running, there shall be no jamming and falling of goods.

5.2.3 The connection point between the carrying device and the lifting traction part in the vertical lifting section shall be in a horizontal state. There is no obvious concave phenomenon in the middle when loading.

5.3 Main parts

5.3.1 Traction part When metal chains are used as traction parts, the chains shall meet the requirements of GB/T 1243.

5.3.2 Carrying device The mechanical properties of the material for the carrying device shall not be lower than Q235A specified in GB/T 700-2006 and 6061 specified in GB/T 6892-2015.

5.3.4 Frame

5.3.4.1 The mechanical properties of the materials such as frame columns, beams and diagonal braces shall not be lower than Q235A specified in GB/T 700-2006.

5.3.5 Drive device

5.3.5.1 The drive device shall run smoothly without crawling. The reducer shall have no oil leakage.

5.3.5.2 The protection level of the motor shall not be lower than the IP54 specified in GB/T 4942.1-2006.

5.4 Surface coating

5.4.1 Before painting, the structural parts shall be de-rusted. The processing level shall meet the requirements of level and level St3 in GB/T 8923.1-2011.

5.5 Whole machine installation

5.5.1 After the whole machine is assembled, the levelness of the carrying device shall not be greater than 3mm.

5.5.4 When the whole machine is assembled, the horizontality of the frame beam shall not be greater than 3mm. See Figure 4.

5.6 Safety requirements

5.6.1 Set up safety warning signs such as "Danger, Warning and Attention" at the obvious position of the conveyor.

5.6.5 A cargo drop detection device shall be installed in the conveyor.

5.6.6 The motor shall be a brake motor with overload, overheating and overcurrent protection.

5.6.7 The conveyor shall be equipped with sound and light alarm devices. They shall comply with the provisions of

10.3 Indicator lights and displays in GB 5226.1-2008.

6 Test methods

6.1 Visual inspection Visually inspect whether the safety warning signs, entrance and exit