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

GB 40160-2021

Safety rules for elevating work platforms

升降工作平台安全规则

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1 Scope

GB 40160-2021 is the Chinese national standard on safety rules for elevating work platforms, in the field of materials handling equipment. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 30 April 2021 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2022. Classification: ICS 53.020.99, CCS J80. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the safety technical requirements to be complied with in the design, manufacture, installation, use and maintenance of lifting work platforms. This standard applies to the following lifting work platforms.

- Lifting lifting working platform;
- Guide frame climbing work platform;
- Suspended lifting working platform;
- Special-shaped orbital working platform. This standard does not apply to construction hoists.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 3098.1 Mechanical properties of fasteners bolts, screws and studs

GB/T 3098.2 Mechanical properties of fasteners nuts

GB/T 3480.5 Calculation of bearing capacity of spur gears and helical gears Part

3 Terms and definitions

GB/T 25849-2010, GB/T 27547-2011, GB/T 19154-2017, GB/T 19155-2017, JB/T 11169- The following terms and definitions defined in.2011 and JB/T 12786 apply to this document.

3.1 Administrator custodian The entity or individual that directly controls the use and application of the lifting work platform.

Note. Usually refers to the owner, lessor or owner's trustee who obtains control.

3.2 Operator Personnel who have received relevant training and have qualified knowledge

and practical experience to operate the lifting work platform.

3.3 Qualified person Professional competent person Have recognized academic qualifications, certificates, professional identity, or have relevant professional knowledge, trained and experienced, can effectively prove their ability Personnel who strive to solve problems encountered in related matters, work or projects.

3.4 Safety-related bulletin Safety information related to lifting work platforms issued by the manufacturer.

4 Complete machine

4.1 When no special statement is made, the lifting work platform should be able to work normally under the following conditions.

a) The altitude does not exceed 1000m.

b) The relative humidity of the environment is not more than 90% (25°C).

c) The suspended lifting work platform should be able to work normally under the following conditions. - The ambient temperature is -10°C~ 55°C; - The wind speed at the work place is not more than 8.3m/s; - The fluctuation range of the power supply voltage does not exceed $\pm 5\%$ of the rated value. Other lifting working platforms should be able to work normally under the following conditions. - The ambient temperature is -20°C~ 40°C; - The wind speed is not more than 12.5m/s; - The fluctuation range of the power supply voltage does not exceed $\pm 10\%$ of the rated value.

Note. If there are special requirements, the manufacturer and the user shall negotiate and resolve.

4.2 The manufacturer shall ensure that the strength, rigidity and stability of the lifting work platform comply with the provisions of the relevant standards, and the It should be safe to use.

4.3 The manufacturer shall give the maximum force of the lifting work platform on the ground or foundation under various working conditions in the instruction manual, and the user shall Make sure it is safe before use.

4.4 The tires used in the self-mobile lifting work platform should be solid tires or other non-pneumatic tires. If pneumatic tires are used Explosion-proof tire tipping measures.

4.5 The lighting and signaling devices, braking performance and engine emissions of the mobile elevating work platform of the road driving type shall comply with GB 7258 Provisions.

4.6 The fixed lifting work platform shall meet the following requirements.

a) When the rated load exceeds 500kg, a lifting guide device should be installed;

b) The distance between the edge of the embedded part of the fixed foundation and the edge of the foundation should not be less than 50mm.

4.7 The noise of the lifting work platform shall meet the following requirements.

a) When the suspended lifting working platform is working at rated load, the noise value at a distance of 1m from the noise source should not be greater than 79dB(A);

5 Structure

5.1 General When designing the metal structure of the lifting work platform, it should meet the strength (including fatigue) of the structure during transportation, installation, use and testing. Labor intensity), stability, rigidity and related safety requirements.

5.2 Welding The welding of steel structures should meet the requirements of GB 50661, and the key welds should be qualified for welding procedures.

5.3 Bolt connection

5.3.1 High-strength bolts should be used for the connecting bolts of the main stressed components, and the mechanical properties of the fasteners of the high-strength bolt connection pair should meet GB/T 3098.1 and GB/T 3098.2 regulations, and should have performance level marks and certificates.

5.3.2 The design, construction and acceptance of the high-strength bolt connection of the main load-bearing components shall meet the requirements of JGJ82.

5.4 Stairs, ladders, guardrails and straight ladders

5.4.1 Stairs, ladders and guardrails should meet the requirements of GB/T 17888.3.

5.4.2 The straight ladder should meet the requirements of GB/T 17888.4.

5.5 Maintain platforms, working platforms, walkways and skirting boards

5.5.1 Maintenance platforms, walkways, skirting boards and guardrails for self-maintenance should be installed in the operation and maintenance areas above 2m from the ground, and should comply with The following requirements.

a) The maintenance platform and walkway should be made of metal materials, and the bottom plate should have drainage and anti-slip properties. When using round holes, grids or When it cannot form a continuous plane material, the size of the hole or gap should not allow a sphere with a diameter of 15 mm to pass through; in any case Under the circumstances, the area of the hole or gap should be less than 400mm².

b) The width of the maintenance platform and walkway should not be less than 500mm, and the local obstruction can be reduced to 400mm. Maintain platforms and walkways Every