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

GB/T 47722-2026

**Lifting appliances - Wind resistance and anti-slip technical
specification**

起重机械 抗风防滑技术规范

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Foreword

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GB/T 47722-2026 English version. Lifting appliances - Wind Its wind resistance and anti-slip capability are designed for a wind speed of 55 m/s;

b) If the maximum non-operating wind speed exceeds 55 m/s, its wind resistance and anti-slip capability should meet the maximum non-operating wind speed provided by the user. Require.

4.1.3 When lifting machinery does not use anchoring devices and wind-resistant stabilization devices, other wind-resistant devices shall meet the following requirements.

a) When the wind speed is no greater than 35 m/s (coastal), 30 m/s (inland waterway), or

25 m/s (other areas), the speed shall be calculated as 35 m/s (coastal). The wind resistance and anti-slip capability of the wind-resistant device is determined by a wind speed of 30 m/s (inland rivers) or 25 m/s (other regions);

b) When the wind speed is greater than 35 m/s (coastal areas), 30 m/s (inland waterways), or 25 m/s (other areas), the wind-resistant device shall be determined according to the actual wind speed. Its wind and slip resistance capabilities. Note

1. The wind speed and wind force level in this document are found in GB/T 28591. Note

2. The design wind speed for tower cranes is specified in GB/T 13752.

4.1.4 The design of the traveling mechanism and trolley traveling mechanism of lifting machinery should not adopt the half-hinged shaft support structure with self-separable shaft supports, etc. form.

4.1.5 Anchorage calculations should be performed on the base structure of the anchoring devices and wind-resistant stabilization devices for lifting machinery; stability calculations should be performed on independent concrete foundations. Calculations include the diameter and length of anchor bolts, and the number of bolts subjected to shear stress; weld strength verification should be performed on welded components.

4.1.6 For track-mounted cranes that can be precisely positioned, automated anti-winding devices such as "one-click anchoring" devices and electric wind-resistant tie rod devices should be adopted. The typhoon device enables unmanned, rapid, safe, and reliable anchoring of lifting machinery.

4.1.7 For track-mounted cranes subjected to wind loads, priority should be given to using self-locking devices based on track braking to resist gusts of wind.

4.1.8 For rail-mounted lifting machinery subjected to significant wind loads, such as quay container cranes, bridge grab unloaders, and shipbuilding gates. For cranes and similar equipment, the following measures should be adopted.

a) A method of braking all wheels (driving wheels and driven wheels) to improve the wind resistance and anti-skid safety of lifting machinery;

4.2 Management Requirements

4.2.1 Operators and managers of lifting machinery should possess wind resistance safety knowledge and management and operational capabilities.

4.2.2 The user unit shall establish a management ledger that reflects the actual usage of the lifting machinery. The ledger shall include, but is not limited to, the following.

a) Configuration and usage of wind-resistant devices;

b) Inspection, maintenance, and upkeep records of wind-resistant devices;

- c) Personnel training records;
- d) Wind-resistant measures, operating procedures, and emergency plans;
- e) Records of wind resistance emergency response plan training and drills;
- f) The rectification status of problems discovered during the drill;
- g) Verify the record.

4.2.3 Typhoon resistance measures for lifting machinery shall be implemented in accordance with the requirements of Chapter 7, and gust resistance measures shall be implemented in accordance with the requirements of 8.1. Upon receiving a report... Following a strong wind forecast, wind-resistant measures should be taken in accordance with the requirements of Chapter 7.

4.2.4 The typhoon resistance capability of lifting machinery should be verified through calculation, and the gust resistance capability of the wind-resistant device of the lifting machinery should meet the requirements of 8.2. Please verify.

4.2.5 When the anchoring device and wind-resistant stabilizing device fail in whole or in part, the lifting machinery shall be stopped from operation, and effective measures shall be taken to address the problem. The operating mechanism of heavy machinery shall be secured and maintained; when the trolley anchoring device cannot be anchored, effective measures shall be taken to secure the trolley. repair.

4.2.6 Existing lifting machinery with self-detachable split hinge support structures or similar features in its operating mechanism should be modified to eliminate the self-detachable split hinge support structure. Self-separating half-hinged shaft support structure.

4.2.7 For in-service lifting machinery designed for wind resistance and anti-slip capability at a working wind speed of 20 m/s, reasonable upgrades and modifications should be made to improve its performance. The wind resistance capability of lifting machinery; for lifting machinery with insufficient wind resistance capability and lacking the conditions for upgrading and retrofitting with wind-resistant and anti-slip capabilities, it is advisable to scrapped.

5 Wind-resistant devices

5.1 Classification Wind-resistant devices are classified by function into typhoon-resistant devices, gust-resistant devices, and wind speed alarm devices. Commonly used wind-resistant device classifications are shown in Figure 1. Figure

5.2 General Requirements

5.2.1 Typhoon-resistant devices should act directly on the lifting machinery to keep the machinery structure stationary. These devices mainly include various types of anchors.

Fixed devices, anchor hook devices, wind-resistant cable devices, wind-resistant tie rod devices, and pitching and stabilizing devices, etc.

5.2.2 Anti-gust devices should directly act on all levels of components in the transmission shaft system or wheel-rail components of the lifting machinery, forming high-speed disc brakes and low-speed... Wheel brakes and rail brakes mainly include drum brakes, disc brakes, inertia brakes, wheel-side brakes (also known as "wheel clamps"), and top rail brakes. Rail clamps, rail clamps, anti-creep devices, wind-powered self-locking devices, and iron wedges, etc. Iron wedges are divided into manual iron wedges and electric iron wedges. Normally closed anti-gust devices should be... These are wind-resistant measures used during typhoons and sustained strong winds.

5.2.3 The wind speed alarm device includes equipment and facilities for receiving, measuring, and recording typhoon and gust information, as well as issuing early warnings and alarms. This mainly refers to anemometers with recording and warning functions.

5.2.4 The configuration of wind-resistant devices for lifting machinery should meet the wind resistance and anti-slip requirements of the lifting machinery. Under the design wind speed, it should ensure that the lifting machinery can operate safely and smoothly. Sliding and scrolling do not occur in the working state or the non-working state.

5.2.5 The wind-resistant devices and their support foundations of lifting machinery should be easy to inspect, maintain and use.

5.3.1 Anchoring Device

5.3.1.1 For anchoring devices operated by a lever handle, a counterweight should be appropriately installed on the handle, and the counterweight should be able to offset 80% to 90% of the force of the insert plate (pin). Due to its own weight, the maximum operating force of the handle should not exceed 200 N. The handle should operate smoothly and without jamming. The insertion plate (pin) should be fully inserted and lifted... All states should be equipped with locking pins to prevent accidental operation.

5.3.1.2 The anchoring device shall ensure the safety and reliability of the lifting machinery and its related components under the following conditions.

- a) When the lifting machinery enters a non-working state and is anchored;
- b) When the lifting machinery is in working condition, performing normal operations and anchoring;
- c) When the lifting machinery is in operation and is in normal working condition, and encounters a sudden gust of wind exceeding the design working wind speed, anchoring is required.

5.3.1.3 The anchoring device insert plate should be secured by inserting wedge blocks into the anchoring pit support to prevent the lifting machinery from swaying or impacting. Basic