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

**GB 5144-2006**

Replacing GB 5144-1994

**Safety code for tower cranes**

塔式起重机安全规程

**Issued on: June 2, 2006**

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Quarantine;  
Standardization Administration of the PRC**

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### 1 Scope

China's mandatory safety code for tower cranes - the rule that governs the machine standing over every building site in the country, which is erected and climbed as the building rises, which cannot be tested in its final configuration before it is used, and whose collapse takes the site and often the street with it. The standard specifies the safety requirements to be observed in the design, the manufacture, the installation, the use, the maintenance and the inspection of tower cranes. It applies to the tower cranes used in construction, and may be used as a reference for tower cranes used for other purposes; it does not apply to truck mounted, mobile or crawler tower cranes. What it covers is the whole life of the machine rather than a product specification: the structure and the mechanisms, designed to the tower crane design rules of GB/T 13752-1992 and built to the fabrication and inspection requirements of JG/T 5112; the ropes, with their examination and discard following GB/T 5972 and their terminations following GB/T 5973, GB/T 5975 and GB/T 5976; the wheels to JG/T 53 and the operator's cab to JG/T 54-1999; the safety devices, which on a tower crane are load carrying and not merely advisory - the load moment limiter, the hoist and slewing and travel limits, the anemometer and the anti-collision arrangement; the erection, climbing and dismantling, which is when the great majority of tower crane accidents happen and which is treated at length; the foundation and the ties to the structure; the conditions under which work must stop, above all wind; and the periodic inspection and maintenance regime, with operation following JG/T 10. Issued on 2 June 2006 and in force since 1 October 2007, it replaces GB 5144-1994.

The standard specifies that safety techniques should be conformed to when designing, manufacturing, installing, applying, maintaining, or inspecting the tower crane (hereafter referred to as tower machine). This standard is applicable to the construction tower crane. This standard can also be used as the implement reference for tower crane for other purposes. This standard is inapplicable to truck tower crane, mobile tower crane or crawler tower crane.

### 2 Normative References

The following standards contain provisions which, through reference in this text, constitute

provisions of this standard. For dated reference, subsequent amendments to, or revisions of (excluding corrigendum contents), any of these publications do not apply. For undated references, the latest edition of the normative document referred to applies.

GB/T 5972 Wire Ropes for Cranes-Code of Practice for Examination and Discard ( ISO 4309.1990)

GB/T 5973 Cuneiform Connector for Use with Steel Wire Ropes

GB/T 5975 Clamping Plates for Fixing Steel Wire Ropes

GB/T 5976 Wire Rope Grips

GB/T 9462-1999 Specification for Tower Cranes

GB/T 13752-1992 Design rules for Tower Cranes JG/T

53 Wheel Specification for Tower Cranes JG/T 54-1999 Specification for Operator Cab of Tower Cranes JG/T

10 Tower Cranes Specification for Operation JG/T 5112 Steel Structure Manufacturing and Testing for Tower Cranes

### 3 Complete Machine

3.1 The working conditions of tower crane should conform to the provisions of clause 4.1.1 , 4.1.4 in GB/T 9462- 1999.

3.2 The anti-rollover stability of tower crane should conform to the provision of clause 4.1.6 in GB/T 9462-1999.

3.3 During jacking tower crane mast, even if the cylinder rod extends out of the hoisting cylinder during the hoisting circulation process, the upper end of tower body should be 60mm higher than the central line of upper-lined directional roller (or sliding sleeve) at least.

3.4 The tower crane should guarantee no matter on under the working or off working conditions, the balancing weight or mould weight won't occur any shift or being brushed off, no crashing among balancing weight wheels. If the balancing weight is made of particulate material, then the waterproof and weight guaranteeing ballast box should be applied.

3.5 The product label should be sealed on a previous position on the bottom of the tower body. The tablet contents should conform to the provision of clause 7 .1.1 in GB/T 9462- 1999, namely, setting up tablet or display screen for the general-used operational data on a previous position in the operator cab of the tower crane. The tablet or display screen contents should include the amplitude load meter, main performance parameter, hoisting speed and hoisting capacity at each threshold etc .. The tablet or display screen should be installed fixed or safely with eye-catching and clear writing.

3.6 The stochastic technique file provided by tower crane manufacturer should conform to the relevant provisions of GB/T 9462. The operation manual of tower crane should not only conform to the provision of Clause

7.2.6 in GB/T 9462-1999, but also contains the following contents.

- a) The low temperature mechanical property, operating temperature range and other relevant factors of the main load-carrying structures will decide the application temperature, normal service life or utilize grade, load-up condition, work class and allowable pressure of tower crane;
- b) The adjusting method, adjusting parameter and error indices of safety device;
- c) If it is required to install balancing weight before shear leg, then balancing weight quantity, specification and position should be indicated;
- d) After the completing the shear leg assembly, the testing items and testing method for the connecting pieces like axis pin and location-plate for installing purpose etc.;
- e) The safety working steps, applied balancing measures, testing parts and testing items during the tower crane mast section inserting and retracting period;