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

GB/T 19154-2017

Replacing GB 19154-2003

Building maintenance units

擦窗机

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Symbols, Codes, Abbreviations, Terms and Definitions

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 19154-2003 "Window polisher", compared with GB/T 19154-2003, the main technical changes are as follows:

- a) Add the assumptions of this standard, etc. to "Scope" (see Chapter 1);
- b) Add "building maintenance equipment", "sustained suspension access equipment", "qualified personnel", "operator", etc. to "terms" and "definitions" Language and definitions (see 3.2);
- c) The following changes have been made to the type and main parameters (see Chapter 4). 1) Increased the type of slide window wiper; 2) The main parameter has been increased by "630" and "1000"; 3) Added a typical window wiper icon.
- d) The operating speed of each agency is modified to 18m/min (see 5.3.2);
- e) The noise of the window wiper is modified to 79dB(A) (see 5.3.3);
- f) modified the reliability classification of the window wiper (see 5.3.4);
- g) increase the scrap of structural parts (see 5.4);
- h) increased safety requirements and measures (see 5.5);
- i) The original standard structural safety factor requirements, wind load design requirements, etc. were revised to include. equipment structure, stability and mechanical design requirements. The following changes were made to the contents of the original standard (see Chapter 6). 1) Added an overview; 2) increase the content of allowable stress; 3) Increased design load and force content; 4) Added the content of the design load of the gondolas; 5) Added suspension device calculations; 6) Increased the calculation of wire ropes; 7) Added content of constraint system calculations;
- j) modified the contents of the gondola (see Chapter 7);
- k) revised the content of the lifting organization (see Chapter 8);
- l) revised the contents of the trolley, rail crawler, and jib (see Chapter 9);

m) modified the contents of the orbit (see chapter 10);

1 Scope

China's national standard for building maintenance units - the permanently installed machines on the roof of a tall building that lower a cradle down the facade for cleaning and maintenance. It specifies the symbols, codes, abbreviations, terms and definitions, the types and main parameters, the general technical requirements, the equipment structure, stability and mechanical design calculations, the gondolas, the hoisting mechanism, the suspension device, the track, the electrical and control systems, the test methods, the inspection rules, the marking and the accompanying documentation. It is a long document because a building maintenance unit is a crane that carries people, permanently exposed to weather, operated by cleaners rather than by crane drivers, and anchored to a structure that was designed by somebody else. Every one of those facts adds requirements. Because it carries people, the suspension, the hoist and the secondary safety devices are duplicated and the design factors are those of a passenger-carrying appliance rather than a load-lifting one. Because it lives outdoors for the life of the building, corrosion protection, wind limits and parking arrangements are structural requirements rather than good practice. Because it is anchored to the building, the standard has to specify the loads the equipment imposes on the structure, which is the subject of a normative annex, since the building must have been designed to receive them. And because the cradle hangs free, stability and the behaviour of the suspended assembly in wind govern the geometry. The normative annexes cover the gondola test, the hoist and backup device test, the suspension test, the loads imposed on the building, the wireless control requirements, the design of tracks, monorails and support systems, and the particular case of the sliding window cleaning machine. Issued on 12 July 2017 and in force since 1 August 2018, it replaces GB 19154-2003.

This standard specifies the terms and definitions, types and main parameters of the window wiper, general technical requirements, equipment structure, stability and mechanical design Calculations, gondolas, hoisting mechanisms, suspensions, tracks, electrical systems and control systems, test methods, inspection rules, signs, random documents, etc. This standard includes the design and calculation of the track and its support system of the window wiper, and the relevant load applied to the building structure by the wheel loader. Regulations, installation of window cleaners and safety requirements for buildings and structures. This standard includes significant risks associated with the operation of window cleaners. This standard describes the appropriateness of eliminating or reducing the occurrence of significant risks. Technical measures. The window wiper and the degree of danger involved in this standard need to be within the scope of this standard. This standard assumes the following conditions.

a) The manufacturer or supplier must work with the purchaser or employer under specific local installation conditions and desired functions and requirements Negotiation;

- b) A risk analysis has been done for each assembly part of the window wiper machine and the rules developed are based on this assumption;
- c) The basic safety requirements for the components of this standard are. - Design according to all failure modes and calculation rules of the current engineering practice; - Have reliable mechanical and electrical processing manufacturing capabilities and means; - Have sufficient strength and proper material manufacturing; - No visual defects;
- d) do not use harmful materials such as asbestos;
- e) The equipment maintains a good working condition;
- f) Any mechanical device that is well processed and produced in accordance with this standard will not be damaged without danger to the point of danger degree;
- g) working environment temperature range between -10°C~ 55°C;
- h) The structure of the window wiper installed shall have sufficient strength to withstand the expected load. This standard applies to power-driven or manual window cleaners for buildings or structures. This standard does not apply to.
 - a) harsh and special working conditions (such as harsh environmental conditions, corrosive environments, strong magnetic field environments);
 - b) work under specific rules (eg in explosive atmospheres, live work);
 - c) transport personnel from one floor to another;
 - d) Handling dangerous goods (such as molten metals, acidic substances, radioactive substances, fragile items);
 - e) suspended gondolas on cranes;

2 Normative references

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

GB/T 700 carbon structural steel

GB/T 1591 low alloy high strength structural steel

GB/T 2423.56 Environmental testing for electric and electronic products Part 2. Test methods Test Fh. Broadband random vibration (digital control System) and guidelines General rules and safety requirements for

GB/T 3766 hydraulic drive systems and their components

GB/T 3811 crane design specification

GB/T 4208 enclosure protection (IP code)

GB 5144 tower crane safety regulations

GB 5226.1 Mechanical electrical safety machinery electrical equipment Part 1. General technical conditions

GB 5226.2-2002 Safety equipment for mechanical machinery-Part 32. Technical conditions for lifting appliances

GB/T 5972 crane wire rope maintenance, maintenance, inspection and scrap

GB/T 7932 General Specifications for Pneumatic Systems

GB/T 8918 important use wire rope

GB/T 9969 Instruction Manual for Industrial Products GB/T 13306 signage

3 Symbols, Codes, Abbreviations, Terms and Definitions

3.1 Symbols, Codes, Abbreviations Symbols, codes, abbreviations in Appendix J.

3.2 Terms and Definitions The following terms and definitions apply to this document.

3.2.1 Standing suspension close to the device permanently
installed suspended access equipment Permanent suspension access equipment for the cleaning and maintenance of windows and exterior walls of buildings or structures.

Note 1. The window polisher usually consists of a suspension device and a gondola. Suspension devices are usually equipped with a lifting mechanism, on a track or a suitable running surface (such as concrete Road) consisting of trolleys that walk on. NOTE

2 Suspension monorails equipped with rail-trackers or other suspension devices (such as lances) attached to buildings are part of the window wiper and are usually connected to the gondola.

3.2.2 Qualified personnel competent person After training, with qualified knowledge and practical experience, received the necessary guidance, and the ability to complete the required work safely personnel.

3.2.3 Operator operator After high-level training, with qualified knowledge and practical experience, he has received necessary guidance and has the ability to operate the window cleaner safely. Designated person.

3.2.4 Hoisting hoist drum hoist A single-layer or multi-layer wire rope is wound on a reel, and a mechanism for driving the hoisting boat up and down by means of a reel driving wire rope is adopted.

3.2.5 Climbing type lifting mechanism traction hoist The mechanism for driving the wire rope up and down by means of the frictional force between the steel wire rope and the driving