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

JG/T 125-2017

**Building hardware of windows and doors - Hinges
(English Translation)**

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1 Scope

This standard specifies the terms and definitions, classification and marking, requirements, test methods, inspection rules, signs, packaging, transportation, storage of hinges for building doors and windows.

This standard applies to hinges for building side-hung doors and inner side- hung windows. It is not applicable to hinges for frameless side-hung glass doors, hinges for screen doors and windows, hinges for folding doors and windows.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 2828.1 Sampling procedures for inspection by attributes - Part 1:

Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 5823 Terminology for building windows and doors

GB/T 14436 General principles of industrial product guarantee documents

GB/T 29048 Operating forces - Test method - windows

GB/T 29555-2013 Test method of operating forces for doors

GB/T 32223 Building hardware for windows and doors - General requirements

3 Terms and definitions

The terms and definitions as defined in GB/T 5823 and GB/T 32223, as well as the following terms and definitions, apply to this document.

3.1

Hinge

A device, which is used to connect the door and window frame and the door and window sash, AND support the door and window, to realize the rotation of the door and window sash indoors or outdoors.

[GB/T 32223-2015, Terms and definitions 3.10]

3.2

Visible hinge

The hinge, which has visible part, when the door and window sash is closed.

3.3

Concealed hinge

The hinge, which has no visible part, when the door and window sash is closed.

4.1.1 Classification by purpose

It is divided into two categories, according to purpose:

- a) Door hinge, codenamed MJ;
- b) Window hinge, codenamed CJ.

4.1.2 Classification by installation form

It is divided into two categories, according to the installation form:

- a) Visible hinge, codenamed MZ;
- b) Concealed hinge, codenamed YC.

4.1.3 Classification by load-bearing level

When classified by the bearing capacity of a set (2) of hinges, which are used for a single door and window, take weight that is an integer multiple of 10 kg, to indicate the bearing level (for example, when the bearing is 26 kg, it is expressed as a level of 20 kg).

6.4.1.1 Door hinge with use frequency I

Install a set of hinges on the steel test simulated door. Apply the weight to the load-bearing level. Open and close the door leaf 20 times. Follow the test method of 8.1 in GB/T 29555-2013, to carry out the test, when the door leaf is opened to $90^\circ \pm 5^\circ$ OR the during the process of reaching to the design maximum opening angle.

6.4.1.2 Visible door hinges with use frequency II, window hinges with use

frequency III

Install a set of hinges, on the test simulation door and window of corresponding size, according to its actual load. The door hinge is tested, according to the test method of GB/T 29555; the window hinge is tested, according to the test method of GB/T 29048.

6.4.2.1 Door hinge with use frequency I

For the door hinge specimen, with the use frequency I, after the test of the rotational force performance, it is tested for the load-bearing performance, according to the following requirements. The schematic diagram of the position of the measurement point of the load deformation test, is as shown in Figure 5.

- a) When loading to the load-bearing level, at the center of gravity of the door leaf, record the horizontal distance h_0 and the vertical distance v_0 ;
- b) After loading the door leaf, at the center of gravity, to 2 times the load-bearing level AND opening and closing the door leaf 20 times, record the horizontal distance h_1 and vertical distance v_1 , after deformation;
- c) Calculate the horizontal deformation Δh_1 , under the load-bearing level, according to formula (1). Calculate the vertical deformation Δv_1 , under the load-bearing level, according to formula (2);
- d) After unloading, open and close the door for another 5 times. Then record the horizontal distance h_2 and vertical distance v_2 , after unloading and recovery. Use the formula (3), to calculate the residual horizontal deformation Δh_2 after unloading. Use the formula (4), to calculate the residual vertical deformation Δv_2 , after unloading;

Where:

Δh_1 - The horizontal deformation, under 2 times the load-bearing level, in millimeters (mm);

h_1 - The horizontal distance, under 2 times the load-bearing level, in millimeters (mm);

h_0 - The horizontal distance, in the initial state, in millimeters (mm);

Where:

Δv_1 - The vertical deformation, under 2 times the load-bearing level, in millimeters (mm);

v_1 - The vertical distance, under 2 times the load-bearing level, in millimeters (mm);

v_0 - The vertical distance, in the initial state, in millimeters (mm);

Where:

Δh_2 - The horizontal residual deformation after unloading, in millimeters (mm);

h_2 - The horizontal distance after unloading, in millimeters (mm);

Where:

Δv_2 - The vertical residual deformation after unloading, in millimeters (mm);

v_2 - The vertical distance after unloading, in millimeters (mm).

e) Load 3 times the actual load-bearing weight, at the center of gravity of the door leaf. After opening and closing the door leaf 5 times, keep it for 1 min

~ 2 min. After unloading, check the hinge for visible damage and cracks.

The whole process shall be completed, within 5 minutes.

Legends:

1 - Parts connected with the frame; 2 - Parts connected with the leaf; F - Load.

Figure 7 -- Schematic diagram of static load test of parts on upper hinge frame

6.4.4.1 Door hinge with use frequency I

The door hinge, with use frequency I, after the test of load-bearing performance, is repeatedly opened and closed, according to the following requirements:

a) Measure and record the rotation force, according to the test method in

6.4.1.1. Record the horizontal distance h_0 and vertical distance V_0 in

Figure 5;

b) Open the door leaf to the $90^\circ \pm 5^\circ$ position OR the designed maximum opening angle, through the test device. Open and close the door leaf at a speed of (600 ± 30) times/h, for 200000 times. During the test, always maintain the weight of the load-bearing level in 6.4.1.1. After every 10000 times, follow the requirements of instruction manual, to lubricate the product;

c) Record the horizontal deformation distance h_3 and vertical deformation distance v_3 , after repeated opening and closing. Calculate the horizontal deformation Δh_3 , according to formula (6). Calculate the vertical deformation Δv_3 , according to formula (7);

Where: