GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 81.040.20

Q 33

GB/T 36267-2018

Test Method of Energy Consumption per Unit Products for Tempered Glass

钢化玻璃单位产品能耗测试方法

Issued on: June 07, 2018 **Implemented on: May 01, 2019**

Issued by: State Administration for Market Regulation;
Standardization Administration of PRC.

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Test Method of Energy Consumption per Unit Products for Tempered Glass

1 Scope

This Standard specifies the statistical classification, statistical period, statistical preparation, energy consumption and output statistics and energy consumption calculation methods for the energy consumption per unit products of tempered glass.

This Standard is applicable to the test of energy consumption in the horizontal tempered glass production line of physical tempering method.

This Standard is not applicable to the test of energy consumption in the chemical tempered glass production line.

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) are applicable to this document.

GB 15763.2 Safety Glazing Materials in Building – Part 2: Tempered Glass

GB/T 20840.2 Instrument Transformers – Part 2: Additional Requirements for Current Transformers

3 Statistical Classification

Separately count the flat regular tempered glass, flat low-emission coated tempered glass, curved regular tempered glass and curved low-emission coated tempered glass.

4 Statistical Period

The statistical period for the tempered glass with the same thickness and the same type in the same production line shall be continuous production for at least 1h, and no less than 5 furnaces.

5 Statistical Preparation

5.1 Statistical preparation of energy consumption

Check the power supply design drawings of the tempered glass manufacturer or the cable line for the heating and cooling processes of the tempered glass production line determined and coordinated between the person in charge of the enterprise and the electrician; record the rated current passing through each cable line.

5.2 Energy consumption statistical device

The energy consumption statistical device consists of digital electronic measuring instrument, current transformer and record statistics system.

Digital electronic measuring instrument: the accuracy level is above 0.2.

Current transformer: it adopts the split-core current transformer with accuracy level above 0.5; two current transformers are equipped with ranges of 1000A and 2500A; their performances meet the requirements of GB/T 20840.2.

Record statistical system: record the real-time current and real-time voltage every 2s; calculate the total energy consumption during the statistical period.

6 Energy Consumption and Production Statistics

6.1 Energy consumption statistics range

In the case of normal production of the enterprise, count the energy consumption in the tempered glass production line excluding glass cutting, edging, cleaning, and the like processes, as well as the energy consumption of other auxiliary equipment.

When an enterprise has multiple tempered glass production lines, they shall be counted separately.

6.2 Energy consumption statistics

According to the rated current passing through the i^{th} cable line, select the current transformer with suitable range; correctly connect with the energy consumption statistics device; record the energy consumption W_1 displayed on the device before the statistical period; record the energy consumption W_2 displayed on the device after the completion of the statistical period.

The energy consumption E_i of the i^{th} cable line during the statistical period shall be calculated as per Formula (1):

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