# GB

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# GB 36893-2024

Replacing GB 36893-2018

# Minimum allowable values of energy efficiency and energy efficiency grades for air cleaner

# 空气净化器能效限定值及能效等级

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**Standardization Administration of PRC.**

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# Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 *Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*.

This document replaces GB 36893-2018 *Minimum allowable values of the energy efficiency and energy efficiency grades for air cleaners*. Compared with GB 36893-2018, in addition to structural adjustments and editorial modifications, the main technical changes are as follows:

a) The scope is modified (see Chapter 1; see Chapter 1 of the 2018 edition);

b) The terms and definitions of "air purification function mode", "off mode", "standby mode" and "network mode" are added (see Chapter 3);

c) Changed The terms and definitions of "rated condition", "energy efficiency ratio", "input power of purification", "standby power" and “minimum allowable values of energy efficiency” (see Chapter 3; see Chapter 3 of the 2018 edition);

d) The terms and definitions of "clean air delivery rate of particle" and "purification efficiency of gaseous pollutants" are deleted (see Chapter 3 of the 2018 edition);

e) The classification method of "Category I products" and "Category II products" is modified (see 4.1; see Chapter 4 of the 2018 edition);

f) The requirements for energy efficiency ratio and standby power are modified (see 4.1; see Chapter 4 of the 2018 edition);

g) The requirements for measured and nominal values of energy efficiency ratios and for energy efficiency grades and nominal grades are added (see 4.2);

h) The test method for "particulate matter clean air delivery rate" is modified (see 6.1.1; see 6.1.1.1 of the 2018 edition);

i) The test method for "gaseous pollutant clean air delivery rate" is added (see 6.1.2);

j) The test method for "purification efficiency of gaseous pollutants" is deleted (see 6.1.2 of the 2018 edition);

k) The test method for "input power of purification" is modified (see 6.1.3; see 6.1.1.2 of the 2018 edition);

# Minimum allowable values of energy efficiency and energy efficiency grades for air cleaner

## 1 Scope

This document specifies the energy efficiency grades, technical requirements, and testing and calculation methods for air cleaners.

This document applies to:

-- air cleaners with a single-phase rated voltage greater than 5 V and not exceeding 250 V, and other rated voltages not exceeding 480 V;

-- air cleaners with the function of removing particulate matter and gaseous pollutants;

-- Humidifying purifier and purification fan with independent air purification function modes.

This document does not apply to:

-- components and modules with air purification functions;

-- wearable air cleaners;

-- duct purification devices and other similar air cleaners;

-- air cleaners designed for industrial use, medical use and vehicles;

-- air cleaners used in special environments with corrosive or explosive gases (such as dust, steam or methane gas).

## 2 Normative references

The provisions of the following documents constitute the essential clauses of this document through normative references in this text. Among them, for referenced documents with dates, only the versions corresponding to the dates are applicable to this document; for referenced documents without dates, the latest versions (including all amendments) are applicable to this document.

GB 12021.9 Minimum allowable values of energy efficiency and energy efficiency grades for electric fans

**4.2** The actual measured value of the energy efficiency ratio of the air cleaner shall not be lower than 90% of the nominal value, and the energy efficiency grade shall not be lower than the nominal grade.

# 5 Technical requirements

The minimum allowable values of energy efficiency of air cleaners are Grade 3 of the energy efficiency grades in Table 1.

# 6 Test and calculation methods

## 6.1 Energy efficiency ratio

### 6.1.1 Particulate matter clean air delivery rate test method

The particulate matter clean air delivery rate test is carried out after the following conditions are met:

a) General test conditions shall meet the requirements of 6.1 of GB/T 18801-2022;

b) The measuring instruments used for the test shall meet the requirements of 6.2 and A.2.1 of GB/T 18801-2022;

c) The test chamber shall meet the requirements of 6.3 of GB/T 18801-2022 when the volume of the test chamber is above 30 $m^3$; if a test chamber of other volumes is used for testing, the method applicability verification shall be passed;

d) The placement of the sample machine to be tested shall comply with the requirements of 6.4 of GB/T 18801-2022;

e) The target pollutant used in the test is cigarette smoke.

The particulate matter clean air delivery rate shall be tested under rated conditions in accordance with the method specified in Appendix A of GB/T 18801-2022, expressed as $Q_{particulate}$, and the results shall be rounded to integers. When the sample machine to be tested is a Category II product, the test shall be carried out in the air purification function mode. If the sample machine to be tested has no rated conditions, the test is carried out at the highest wind speed gear by default.

### 6.1.2 Gaseous pollutant clean air delivery rate test method

The gaseous pollutant clean air delivery rate test is carried out after the following conditions are met:

a) The test environment conditions shall meet the requirements of E.2.1 of GB/T 18801-2022, and other conditions shall meet the requirements of 6.1 of GB/T 18801-2022;

b) The measuring instruments used for the test shall comply with the requirements of 6.2 and E.2.2 of GB/T 18801-2022;

c) The test chamber shall meet the requirements of 6.1.1c);

d) The placement of the sample machine to be tested shall comply with the requirements of 6.4 of GB/T 18801-2022;

e) Formaldehyde is preferably used as the target pollutant for the test; if the formaldehyde removal capacity of the tested sample machine is not declared, any one of the gaseous pollutants, for which the removal capacity is declared, shall be used as the target pollutant.

The gaseous pollutant clean air delivery rate of air cleaners shall be tested under rated conditions in accordance with the method specified in Appendix E of GB/T 18801-2022, expressed as $Q_{gaseous}$. When $Q_{gaseous}$ is ≥10 $m^3/h$, the result is retained as an integer; when $Q_{gaseous}$ is <10 $m^3/h$, the result is retained as one decimal place. When the sample machine to be tested is a Category II product, the test shall be carried out in the air purification function mode. If the sample machine to be tested has no rated state, the highest wind speed gear is turned on by default for testing.

**6.1.3 Input power of purification**

The input power of purification is tested under the following test conditions in accordance with the method specified in 7.6.1 of GB/T 18801-2022, represented by $P$, and the result is rounded to one decimal place. The test conditions shall meet the following requirements:

a) General test conditions shall meet the requirements of 6.1 of GB/T 18801-2022;

b) The measuring instruments used for the test shall meet the requirements of 6.2 of GB/T 18801-2022;

c) When the input power of purification of the tested sample machine for removing different target pollutants is different, it is expressed as $P_{particulate}$ and $P_{gaseous}$, respectively.

**6.1.4 Calculation method**

**6.1.4.1 Calculation method of energy efficiency ratio of particulate matter**

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