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**HJ**

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

**HJ 2523-2012**

Replacing HJ/T 16-1996

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**Technical requirement for environmental protection product.  
Silencers for ventilation  
(English Translation)**

**Issued on: January 1, 1970**

**Implemented on: January 1, 1970**

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**Issued by: Ministry of Ecology and Environment**

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## Foreword

To implement the "People's Republic of China Environmental Noise Pollution Prevention Law," to improve the level of product quality ventilation silencers, ventilation silencers guide Product development and production, the development of this standard.

This standard specifies the ventilation muffler technical performance indicators, test methods and inspection rules.

This standard is the "ventilation mufflers" (HJ/T 16-1996) amendments to the standard compared with the original main modifications are as follows.

- Acoustic Performance Evaluation octave band insertion loss to the arithmetic mean;
- Product range increased micro-perforated plate muffler, HIP me, cellular muffler, canceled the disc muffler;
- Modify the standard limits, and the scope, normative references, technical requirements, test methods have been modified;
- An increase of terms and definitions, inspection rules, signs.

This standard was first published in 1996.

From the date of implementation of this standard, "Ventilation muffler" (HJ/T 16-1996) abolished.

This standard is developed by the Ministry of Environmental Protection Science, Technology organization.

This standard was drafted. China Environmental Protection Industry Association (Noise and

Vibration Control Committee), Beijing Labor Protection Science Research Institute, Shenzhen Ya Electrical and Mechanical Industry Co., Ltd., Institute of Building Physics China Academy of Building Research, Beijing Chong green acoustic engineering Co., Ltd., Shanghai Environmental Protection Engineering Co., Xinhua net.

This standard MEP July 31, 2012 for approval.

This standard since November 1, 2012 implementation.

The standard explanation by the Ministry of Environmental Protection.

Environmental protection product ventilation muffler

## 1 Scope

This standard specifies the technical requirements for ventilation muffler, test methods and inspection rules.

This standard applies to mufflers ventilation and air conditioning engineering supporting the use of.

## 2 Normative references

The standard content of the following documents cited in the articles. For undated references, the effective version applies to this standard.

GB/T 4760 Methods of measurement of acoustic muffler GB/T 20431 acoustic muffler noise control guidelines GB 50243 Construction Quality Acceptance of Ventilation and Air Conditioning Engineering

## 3 Terms and Definitions

The following terms and definitions apply to this standard.

### 3.1 Ventilation muffler

Ventilation and air conditioning projects supporting the use of mufflers.

### 3.2 Insertion Loss

Muffler device compared with previous devices after muffler to reduce the amount of sound power level radiated noise nozzle. Decibels (dB).

### 3.3 Total pressure loss

$\Delta P_t$

Full pressure muffler between upstream and downstream. Unit Pascal (Pa).

### 3.4 Drag coefficient

The average ratio of dynamic pressure and total pressure loss muffler upstream flanged cross section at.

(delta =

tzeta (1)

Where.

vP - according to internal test pipe GB/T 4760 to calculate the average flow dynamic pressure, the unit is Pascal (Pa);

S - cross-sectional area of the test tube, in square meters (m<sup>2</sup>);

'S - muffler upstream flanged sectional area, in square meters (m<sup>2</sup>).

### 3.5 Octave band insertion loss arithmetic mean

OCTD

At the center frequency of 63Hz, 125Hz, 250Hz, 500Hz, 1000Hz, 2000Hz, 4000Hz, 8 octave band measurements of 8000Hz Obtained the insertion loss of the arithmetic mean.

## 4.1 Basic requirements

### 4.1.1

ventilation muffler should be designed to comply with the provisions of GB/T 20431 of.

### 4.1.2

ventilation muffler should be manufactured in accordance with design drawings and technical documents through the muffler prescribed procedures approved by the manufacturer.

### 4.1.3

ventilation muffler production shall comply with the relevant provisions of GB 50243.

### 4.1.4

ventilation muffler structure size and material should be consistent with corporate design drawings.

### 4.1.5

ventilation muffler octave band insertion loss and resistance factor should meet the design requirements.

#### 4.1.6 Appearance quality

##### 4.1.6.1

The skin should be smooth, clean, no rust marks.

##### 4.1.6.2

Each joints should be neat, smooth, sealed, caulked should be uniform, firmly.

##### 4.1.6.3

paint coating should be strong, beautiful, does not allow holidays, sagging, blistering, pucker, scratches, flaking phenomenon.

##### 4.1.6.4

for the use of sound-absorbing material muffler, its protective surface should be smooth, no glitches, tight joints, no projections; surface protection materials There should be no damage, the surface can not be contaminated with oil, paint, dust or other impurities.

#### 4.2 Performance Requirements

Type test, the ventilation muffler octave band insertion loss and the arithmetic mean drag coefficient should meet the requirements of Table 1.

Table 1 ventilation muffler octave band loss and the arithmetic mean drag coefficient insert

| Muffler type                                | arithmetic mean octave band insertion loss dB/m | drag coefficient | Resistive                                   |
|---------------------------------------------|-------------------------------------------------|------------------|---------------------------------------------|
| Straight                                    | $\geq 14$                                       | $\leq 1.0$       | Chip                                        |
| Chip                                        | $\geq 14$                                       | $\leq 1.6$       | Folded plate                                |
| Folded plate                                | $\geq 17$                                       | $\leq 4.0$       | Cellular                                    |
| Cellular                                    | $\geq 24$                                       | $\leq 2.4$       | Straight complex impedance chip             |
| Straight complex impedance chip             | $\geq 14$                                       | $\leq 1.6$       | Micro-perforated plate single straight tube |
| Micro-perforated plate single straight tube | $\geq 6$                                        | $\leq 1.0$       | piece                                       |
| piece                                       | $\geq 6$                                        | $\leq 1.6$       | Double microperfrated Straight              |
| Double microperfrated Straight              | $\geq 9$                                        | $\leq 1.0$       | piece                                       |
| piece                                       | $\geq 9$                                        | $\leq 1.6$       | Muffler elbow                               |
| Muffler elbow                               | $\geq 7$                                        | -                | Silencer plenum chamber                     |
| Silencer plenum chamber                     | $\geq 9$                                        | -                |                                             |

#### 5 Test methods

##### 5.1

Appearance quality by visual.

##### 5.2

insertion loss, total pressure loss test method in accordance with the provisions of GB/T 4760 progresses, the drag coefficient according to equation (1) calculations.

#### 5.3 Test conditions and data processing requirements

The average air velocity 5.3.1 muffler upstream of the mouth of the flange is preferably 3 m/s ~ 12 m/s, and the average flow rate should be between the sheets is not greater than 12m/s.