

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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**Specifications for environmental protection product. Catalytic
converters for petrol vehicles
(English Translation)**

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1 Scope

This Standard specifies the classification and naming, requirements, test procedures and methods, marks, packaging, transportation and storage of catalytic converters for petrol vehicles.

This Standard applies to original equipment catalytic converters and aftermarket catalytic converters for gasoline vehicles.

This Standard also applies to catalytic converters for CNG and LPG fuel-powered vehicles.

2 Normative references

This Standard references clauses from the following documents. For undated references, the latest version applies.

GB 1495, Limits and measurement methods for noise emitted by accelerating motor vehicles

GB 14762, Limits and measurement methods for exhaust pollutants from positive ignition (P. I.) engines of vehicles and vehicles equipped with P. I engines

GB 18352.2-2001, Limits and measurement methods for emissions from light-duty vehicles (II)

GB 18352.3-2005, Limits and measurement methods for emissions from light-duty vehicles (III, IV)

GB/T 18377, Requirements and measurement methods of catalytic converters for petrol vehicles

QC/T 265, Coding rules of automobile part and component

3 Terms and definitions

For the purposes of this Standard, the following terms and definitions apply.

3.1 Catalytic converter

A device installed in the exhaust system of a gasoline vehicle to reduce the emissions of CO, HC compounds and NO_x in the exhaust through oxidation and/or reduction reactions using a catalyst.

3.2 Original catalytic converter

Catalytic converters or catalytic converter assemblies installed during mass production for a certain vehicle type certification.

3.3 Alternative catalytic converter

Catalytic converters or catalytic converter assemblies that meet the requirements of this Standard, other than the original catalytic converters defined in 3.2.

3.4 Catalytic converter conversion efficiency

The rate of change in the emission of a certain pollutant before and after the catalytic converter under specified operating conditions.

Where, i - it represents pollutants CO, HC compounds, and NO_x, respectively.

3.5 Catalytic converter ignition temperature

The inlet gas temperature of a catalytic converter when its conversion efficiency for a certain pollutant reaches 50%.

4.1 Classification

Catalytic converters can be divided into two categories based on their application market.

a) OEM catalytic converter. a catalytic converter that is supplied to a newly manufactured vehicle; this refers to an original equipment catalytic converter.

b) Catalytic converter for aftermarket use. a catalytic converter intended for sale on the market as replacements for damaged or malfunctioning original catalytic

Catalytic converter conversion efficiency

Emissions of pollutant i before the catalytic converter - Emissions of pollutant i after the

catalytic converter

Emissions of pollutant i before the catalytic converter converters. This includes replacement catalytic converters and original replacement catalytic converters.

4.2 Naming

The naming and model numbering of catalytic converters should, in principle, follow

QC/T 265. Alternatively, they can be named and numbered according to the requirements of the automobile/engine manufacturer, but the naming and numbering must include the manufacturer's information.

5.1 General requirements

5.1.1

Catalytic converters should be permanently marked with the manufacturer's name or trademark, as well as the catalytic converter model and the direction of the inlet and outlet.

5.1.2

The design, manufacture, and installation of catalytic converters should ensure that vehicles comply with all national standards.

5.1.3

The design, manufacture, and installation of catalytic converters should be designed to prevent corrosion and oxidation that may occur during vehicle use.

5.1.4

The design and manufacture of the catalytic converter shall ensure that, during the sealing test as described in 6.2.1, the pressure drop shall not exceed 5 kPa. During installation, the interfaces of the catalytic converter shall be sealed.

5.1.5

The replacement catalytic converter should be installed in the same location as the original catalytic converter. The vehicle's ground clearance must not be reduced.

The position of the oxygen sensor in the exhaust pipe should not be altered.

5.1.6

Catalytic converters should be equipped with thermal insulation measures to ensure safe operation.

5.1.7

Catalytic converters shall be subjected to ignition temperature test and air-fuel ratio characteristic test in accordance with 6.2.3.

5.1.8

The catalytic converter shall be accompanied by the following information.

- a) Carrier structure, materials, and manufacturer;
- b) Carrier quantity, shape, size, volume, and pore density;
- c) Precious metal content and proportion;
- d) Gasket type and manufacturer;
- e) Catalytic converter packaging method.

5.2 Mechanical performance requirements

5.2.1

After the product undergoes the axial thrust test (6.2.5.1), thermal life and water quenching test (6.2.5.2), and longitudinal thermal vibration test (6.2.5.3), the relative displacement of the carrier shall not exceed 3 mm according to the measurement in

6.2.5.4; the cumulative axial displacement of the carrier relative to its original position shall also not exceed 6 mm.

5.2.2 When the product undergoes thermal life and water quenching tests according to

6.2.5.2 and longitudinal thermal vibration tests according to 6.2.5.3, and then undergoes a sealing test according to 6.2.1, the pressure drop shall not exceed 5 kPa.

5.3.1.1 For original catalytic converters installed on vehicles with a maximum gross

vehicle weight not exceeding 3500 kg, after an 80000 km durability test according to the method in Annex G of GB 18352.2, the vehicle exhaust emissions shall meet the requirements of Type I test in GB 18352.2 or GB 18352.3.

5.3.1.2 For original catalytic converters installed on automobiles with a maximum gross

vehicle weight greater than 3500 kg, after the catalytic converter undergoes a 100 h rapid aging test as per 6.2.4, the engine emissions should meet the corresponding emission limits when tested according to GB 14762.