QC

AUTOMOBILE INDUSTRY STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 43.060.20

T 13

QC/T 1133-2020

Commercial vehicles air filter safety element

商用汽车空气滤清器安全滤芯

Issued on: August 31, 2020 **Implemented on: April 01, 2021**

Issued by: Ministry of Industry and Information Technology of PRC

Annex:

Number, name and date of implementation of 8 automobile industry standards

No.	Standard number	Standard name	Replaced standard number	Date of implementation
166	QC/T 1131-2020	Methods of detecting polycyclic aromatic hydrocarbons in automotive materials		2021-01-01
167	QC/T 1132-2020	Measurement methods of the noise of electric power train system for electric vehicles		2021-01-01
168	QC/T 1134-2020	Engine intake air water separation test procedure		2021-01-01
169	QC/T 1133-2020	Safety filter element of air filter for commercial automobile		2021-01-01
170	QC/T 770-2020	Dry air filter assembly for automobile	QC/T 770-2006	2021-01-01
171	QC/T 1135-2020	Water filter for automobile engine		2021-01-01
172	QC/T 793-2020	Air filters for motorcycles and scooters	QC/T 793-2007	2021-01-01
173	QC/T 794-2020	Internal-combustion engine industry filter paper	QC/T 794-2007	2021-01-01

Table of Contents

Commercial vehicles air filter safety element

1 Scope

This document specifies the technical requirements, test methods, inspection rules, marking, packaging, transportation, storage of safety elements of commercial vehicle air filters.

This document is applicable to safety elements of commercial vehicle air filters (hereinafter referred to as filter elements), which have a volume flow of less than 4000 m^3/h. For the safety elements of air filters for construction machinery, agricultural and forestry machinery, ships and stationary power, they may refer to this document.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, for dated reference documents, only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 1184-1996 Geometrical tolerancing - Geometrical tolerance for features without individual tolerance indications

GB/T 1804-2000 General tolerances - Tolerances for linear and angular dimensions without individual tolerance indications

GB/T 1958 Geometrical product specifications (GPS) - Geometrical tolerance - Verification

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 14656 Test method for burning behavior of flame-retardant paper and board

QC/T 32-2017 Test methods of air cleaners for automobiles

element shall not be greater than 0.30 g/(m^3 • min^{-1}); the specific dust penetration rate of the non-paper filter element shall not be greater than 0.70 g/(m^3 • min^{-1}).

4.6 Flame-retardancy

For filter elements used in special occasions (such as natural gas engines, etc.), the flame-retardancy of the filter material used shall meet the following requirements:

a) The average continuous burning time is not more than 5 s;

b) The average carbonization length is not more than 115 mm.

4.7 Folding distance and number of folds

4.7.1 The folding distance of the filter element shall be uniform. The maximum folding distance of its unevenness, on the outer diameter of the filter element, shall not be greater than 1.5 times the nominal folding distance. The minimum folding distance shall not be less than 0.5 times the nominal folding distance.

4.7.2 Tolerance of number of folds of filter paper: For filter paper, which has a number of folds of less than 50, the tolerance is ±2 folds; for filter paper, which has a number of folds of 50 ~ 100, the tolerance is ±3 folds; for filter paper, which has a number of folds of more than 100, the tolerance is ±4 folds.

4.8 Dimensional tolerance, shape, position tolerance

4.8.1 The dimensional deviation of the inner hole diameter of the filter element's end cover shall meet the requirements of grade C in GB/T 1804-2000.

4.8.2 The height deviation of the filter element shall meet the requirements of grade C in GB/T 1804-2000.

4.8.3 The perpendicularity deviation, BETWEEN the center line of the filter element AND the end surface, shall meet the requirements of grade L in GB/T 1184-1996.

4.8.4 The parallelism tolerance of both ends of the filter element shall not be greater than 1.5 mm. The measurement position shall be on the ring surface, which is 10 mm away from the inner diameter of the filter element.

4.9 Appearance

4.9.1 The filter element shall be clean. The inner and outer surface shall be free of dirt and impurities.

4.9.2 The metal parts, which are used in the filter element, shall be treated with

5.4.3 If the requirements of 5.1.5 (pre-filter dust removal) in QC/T 32-2017 are applicable, it shall follow the requirements. In this test, the efficiency of the pre-filter will be different from that under normal conditions; however, if it drops significantly, it shall check the reason AND make records truthfully.

5.4.4 Collect the test dust, on the inner wall of the connecting pipe, between the absolute filter and the test piece. Weigh it together with the absolute filter. Calculate and determine the increase in the mass of the absolute filter.

5.4.5 Calculate the specific dust penetration according to formula (1):

$$SDP = \frac{D}{q_{ve}} \qquad \cdots\cdots (1)$$

Where:

SDP - Specific dust penetration, in grams per cubic meter per minute [g/ (m^3 • min^{-1})]

D - The increase in the mass of the absolute filter (that is, the mass of dust that passes through), in grams (g);

q_{ve} - The rated air volume flow, in cubic meters per minute (m^3/min).

5.5 Flame-retardancy

Carry out the test according to the method specified in GB/T 14656.

5.6 Folding distance and number of folds

The folding distance is measured by a vernier caliper. The number of folds is manually counted.

5.7 Dimensional tolerance, shape, position tolerance

The dimensional tolerances are measured by general measuring tools. The shape and position tolerances are measured in accordance with GB/T 1958.

5.8 Appearance

The appearance quality is inspected visually.

6 Inspection rules

6.1 General

Each product can only exit-factory, after passing the inspection by the quality inspection department AND be accompanied by a product certificate.

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