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AUTOMOBILE INDUSTRY STANDARD  
OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 43.020

CCS T 04

QC/T 1157-2022

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**Method of calculating comprehensive energy consumption  
for unit output of automobile products**

汽车产品单位产量综合能耗计算方法

**Issued on: April 8, 2022**

**Implemented on: October 1, 2022**

**Issued by: Ministry of Industry and Information Technology of the People's  
Republic of China.**

## **Announcement of Ministry of Industry and Information Technology of PRC**

No.10 of 2022

The Ministry of Industry and Information Technology approved 555 industry standards, such as the "Regulations on mechanical design of chemical plant pipelines" (see Annex 1). Among them, it includes 4 chemical industry standards, 8 petrochemical industry standards, 5 non-ferrous metal industry standards, 3 building materials industry standards, 156 machinery industry standards (including pharmaceutical equipment), 45 automobile industry standards, 6 shipping industry standards, 48 aviation industry standards, 68 light industry standards, 103 textile industry standards, 6 packaging industry standards, 18 electronics industry standards, 85 communication industry standards. It has approved the amendment of one automobile industry standard of "Tail lifting lifts for vehicles" (see Annex 2). It has approved the foreign language versions of 11 industry standards, such as "Travel luggage and bags" (see Annex 3), including 8 light industry standards, 2 textile industry standards, 1 electronics industry standard. It has approved 79 industry standard samples including "Standard sample of Sorbitite content in high carbon steel wire rod" (see Annex 4), including 78 metallurgical industry standards and 1 non-ferrous metal industry. They are all hereby announced. The industry standard amendment list and industry standard samples will be implemented from the date of release.

The above chemical industry standards (engineering construction) and automobile industry standards are published by Beijing Science and Technology Press. The petrochemical industry standards are published by Sinopec Press. The non-ferrous metal industry standards (engineering construction) are published by China Planning Press. The building material standards are published by China Building Materials Industry Press. The machinery industry standards are published by Machinery Industry Press. The machinery (pharmaceutical equipment) industry standards, textile industry standards (including foreign language versions) and packaging industry standards are published by China Standard Publishing House. The ship industry standards are published under the organization by China Shipbuilding Industry Comprehensive Technical and Economic Research Institute. The aviation industry standards are published under the organization of the China Aviation Comprehensive Technology Research Institute. The light industry standard (including the foreign language version) is published by the China Light Industry Publishing House. The electronics industry standard (including the foreign language version) is published, under the organization of the China Electronics Institute of Technical Standardization. The communication industry standard is published by the People's Posts and Telecommunications Press.

Attachment: Number, standard name and implementation dates of 45 automotive

industry standards

**Ministry of Industry and Information Technology of the People's Republic of  
China**

April 8, 2022

## Annex:

**Number, standard name and implementation dates of 45 automotive industry standards**

| No. | Standard No.   | Standard name                                                                                       | Replaced standard No. | Date of implementation |
|-----|----------------|-----------------------------------------------------------------------------------------------------|-----------------------|------------------------|
| 177 | QC/T 1157-2022 | Method of calculating comprehensive energy consumption for unit output of automobile products       |                       | 2022-10-01             |
| 178 | QC/T 1158-2022 | Method of calculating comprehensive water consumption for unit output of automobile products        |                       | 2022-10-01             |
| 179 | QC/T 1159-2022 | Guidelines on evaluation of automobile industry green supply chain management                       |                       | 2022-10-01             |
| 180 | QC/T 1160-2022 | Guidelines on evaluation of whole vehicle manufacturing green factory in automobile industry        |                       | 2022-10-01             |
| 181 | QC/T 1161-2022 | Technical specifications for green-design product assessment - Automobile                           |                       | 2022-10-01             |
| 182 | QC/T 1162-2022 | Honeycomb sandwich structure product for automobile exterior decoration parts                       |                       | 2022-10-01             |
| 183 | QC/T 1163-2022 | Automotive diesel engines - Reduction agent filter for selective catalytic reduction (SCR) system   |                       | 2022-10-01             |
| 184 | QC/T 1164-2022 | Natural gas filter for road vehicle                                                                 |                       | 2022-10-01             |
| 185 | QC/T 1165-2022 | Carbon canister air filter for gasoline passenger car                                               |                       | 2022-10-01             |
| 186 | QC/T 1166-2022 | Streaming mirror view mirror for vehicle                                                            |                       | 2022-10-01             |
| 187 | QC/T 1167-2022 | Service brake dynamometer squeal noise test methods for passenger cars                              |                       | 2022-10-01             |
| 188 | QC/T 1168-2022 | Performance requirements and bench test methods for vehicle electric air compressor                 |                       | 2022-10-01             |
| 189 | QC/T 463-2022  | Technical requirements and bench test methods for automotive hydrodynamic torque converter assembly |                       | 2022-10-01             |
| 190 | QC/T 792-2022  | Motors and controllers for electric motorcycles and electric mopeds                                 |                       | 2022-10-01             |
| 191 | QC/T 1169-2022 | Liquid crystal instrument for automobile                                                            |                       | 2022-10-01             |
| 192 | QC/T 1170-2022 | Performance film for automotive glass                                                               |                       | 2022-10-01             |
| 193 | QC/T 1171-2022 | Automotive paint protection film                                                                    |                       | 2022-10-01             |
| 194 | QC/T 804-2022  | Instrument panel assembly and Console assembly for passenger cars                                   |                       | 2022-10-01             |
| 195 | QC/T 1016-2022 | Door trim panel assembly for passenger cars                                                         |                       | 2022-10-01             |
| 196 | QC/T 768-2022  | Toilet of passenger car                                                                             |                       | 2022-10-01             |
| 197 | QC/T 580-2022  | Mounting dimensions of automobile transmission assembly                                             |                       | 2022-10-01             |
| 198 | QC/T 1172-2022 | Performance requirements and test methods of exhaust muffler for vehicles air brake equipment       |                       | 2022-10-01             |
| 199 | QC/T 237-2022  | Bench test methods for the performance of automobile parking brake                                  |                       | 2022-10-01             |

| No. | Standard No.   | Standard name                                                                         | Replaced standard No. | Date of implementation |
|-----|----------------|---------------------------------------------------------------------------------------|-----------------------|------------------------|
| 200 | QC/T 1173-2022 | Road vehicles - Spark-plugs application test methods                                  |                       | 2022-10-01             |
| 201 | QC/T 1174-2022 | High voltage fuse of electric vehicles                                                |                       | 2022-10-01             |
| 202 | QC/T 1175-2022 | High voltage contactor for electric vehicles                                          |                       | 2022-10-01             |
| 203 | QC/T 1176-2022 | Evaporator for automotive air conditioning                                            |                       | 2022-10-01             |
| 204 | QC/T 1177-2022 | Condenser for automotive air conditioning                                             |                       | 2022-10-01             |
| 205 | QC/T 633-2022  | The seats of passenger vehicles                                                       |                       | 2022-10-01             |
| 206 | QC/T 80-2022   | Road vehicles - Polyamide (PA) tubing for air braking systems                         |                       | 2022-10-01             |
| 207 | QC/T 1178-2022 | Motor vehicle and towed vehicle Pneumatic braking system -<br>Tapped and male fitting |                       | 2022-10-01             |
| 208 | QC/T 1179-2022 | Specification for wheel bolts of automobile                                           |                       | 2022-10-01             |
| 209 | QC/T 869-2022  | Short-cycle drawn arc welding stud                                                    |                       | 2022-10-01             |
| 210 | QC/T 870-2022  | Double end studs $b_m = 1.25d$                                                        |                       | 2022-10-01             |
| 211 | QC/T 871-2022  | Double end studs $b_m = 2d$                                                           |                       | 2022-10-01             |
| 212 | QC/T 598-2022  | Bolt-for projection welding on the bearing face                                       |                       | 2022-10-01             |
| 213 | QC/T 599-2022  | Overhead projection weld bolts                                                        |                       | 2022-10-01             |
| 214 | QC/T 624-2022  | Rubber plugs                                                                          |                       | 2022-10-01             |
| 215 | QC/T 603-2022  | Clips - Type A                                                                        |                       | 2022-10-01             |
| 216 | QC/T 604-2022  | Clips - Type B                                                                        |                       | 2022-10-01             |
| 217 | QC/T 605-2022  | Clips - Type C                                                                        |                       | 2022-10-01             |
| 218 | QC/T 606-2022  | Clips - Type H                                                                        |                       | 2022-10-01             |
| 219 | QC/T 618-2022  | Specification for plastic expansion nut                                               |                       | 2022-10-01             |
| 220 | QC/T 928-2022  | Plastic cable and tubing clips with inter-fix hole                                    |                       | 2022-10-01             |
| 221 | QC/T 929-2022  | Plastic cable and tubing clips with side-fix hole                                     |                       | 2022-10-01             |

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# Method of calculating comprehensive energy consumption for unit output of automobile products

## 1 Scope

This document specifies the terms and definitions, statistical scope, and calculation methods of comprehensive energy consumption per unit output of automobile products.

This document is applicable to the calculation of comprehensive energy consumption per unit output of automobile products.

## 2 Normative references

The following documents contain the provisions which, through normative reference in this document, constitute the essential provisions of this document. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for the undated referenced documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 2589-2020 General rules for calculation of the comprehensive energy consumption

GB 17167 General principle for equipping and managing of the measuring instrument of energy in organization of energy using

## 3 Terms and definitions

The following terms and definitions apply to this document.

### 3.1 total comprehensive energy consumption of automobile products

In the statistical reporting period, the physical quantities of various energy sources that is actually consumed during the entire production process of automobile products.

### 3.2 comprehensive energy consumption for unit output of automobile products

During the statistical reporting period, the ratio of the comprehensive energy consumption of automobile products to the total amount of qualified products produced in the same period.

**4.2.3** The energy consumed for heating and cooling of the production system and supporting production system activities shall also be included in the scope of comprehensive energy consumption statistics.

**4.2.4** The loss of energy and energy-consumed medium due to the internal storage, conversion, distribution, and supply of the energy-consuming organization shall also be included in the comprehensive energy consumption.

### **4.3 Types of comprehensive energy consumption statistics**

**4.3.1** The types of energy statistics for comprehensive energy consumption of automobile products include primary energy, secondary energy, and energy consumed by the outsourced energy-consumed medium.

Note 1: Primary energy refers to energy resources that exist in the original forms in nature and have not been processed.

Note 2: Secondary energy refers to energy products converted from primary energy processing.

**4.3.2** The part of the energy-consumed medium that comes from the self-production of the enterprise shall be counted according to the energy consumption corresponding to the production, and the outsourced energy-consumed medium shall be converted in accordance with the requirements of Appendix B.

**4.3.3** The energy consumed by the compressed air produced by the enterprise itself shall be converted according to the electricity consumed by the working of the compressor.

### **4.4 Statistical period**

The statistical period shall be a certain period of continuous production, and the statistical period shall be at least not less than 12 natural months.

### **4.5 Statistics on the number of automobile products**

The number of automobile products to be counted shall be the number of qualified automobile products produced within the statistical period.

## **5 Calculation method**

### **5.1 Calculation method of energy consumption of production system**

The energy consumed by the production system in the production process of automobile products is calculated according to the formula (1):

$$E_1 = E_a + E_b + E_c + E_d \quad \dots\dots\dots (1)$$

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