



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

GB/T 20234.1-2023

Replacing GB/T 20234.1-2015

**Connection set for conductive charging of electric vehicles -
Part 1: General requirements**

电动汽车传导充电用连接装置 第1部分:通用要求

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Foreword

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

This document is Part 1 of GB/T 20234 "Connection set for conductive charging of electric vehicles". The following parts of GB/T 20234 have been issued:

- Part 2: AC charging coupler;
- Part 3: DC charging coupler.

This document replaces GB/T 20234.1-2015 "Connection set for conductive charging of electric vehicles -- Part 1: General requirements". Compared with GB/T 20234.1- 2015, in addition to structural adjustments and editorial changes, the main technical changes in this document are as follows:

- a) Change rated voltage and rated current (see Chapter 1 and Chapter 5 of this Edition; Chapter 1 and Chapter 5 of Edition 2015);
- b) Add some terms and definitions (see Chapter 3 of this Edition; Chapter 3 of c) Add requirements and corresponding test methods for temperature cycling, alternating heat and humidity, thermal management systems, liquid cooling medium cooling devices, temperature detection, locking devices, offset operations, contact durability, charging cables and in-cable devices. Change in grounding conductor specifications, grounding measures, mechanical strength, normal operation requirements and corresponding test methods. Delete the breaking capacity requirements of the DC charging coupler (see Chapter 6 and Chapter 7 of this Edition; Chapter 6 and Chapter 7 of Edition 2015);
- d) Add inspection requirements such as type inspection plan (see Chapter 8 of this Edition);
- e) Add Annex B "Reference test tools for temperature rise test" (see Annex B of this Edition).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority shall not be held responsible for identifying any or all such patent rights.

This document was proposed by Ministry of Industry and Information Technology of the People's Republic of China.

This document shall be under the jurisdiction of National Technical Committee on Automobiles of Standardization Administration of China (SAC/TC 114).

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Versions of standard substituted by this document are:

- When it was first revised in 2011, it was revised as Part 1 of this series of Standard
- This is the third revision.

Introduction

Conductive charging is the basic way for electric vehicles to replenish electrical energy. GB/T 20234 aims to standardize the technical requirements and test methods of charging connection sets and unify the interface type and structural dimensions of charging couplers, thereby realizing the interconnection between electric vehicles and charging infrastructure. GB/T 20234 is planned to consist of 4 parts:

- Part 1: General requirements. The purpose is to establish the general performance requirements for charging connection sets and ensure the functionality and reliability of the product.

- Part 2: AC charging coupler. The purpose is to establish the contact definition, contact connection interface, structural dimensions, etc. of the AC charging coupler to achieve the interchangeability of the AC charging coupler.
- Part 3: DC charging coupler. The purpose is to establish the contact definition, contact connection interface, structural dimensions, etc. of the DC charging coupler (including high-power charging) to achieve the interchangeability of the DC charging coupler.
- Part 4: High power DC charging coupler. The purpose is to establish the composition, interface function and layout, cable requirements, thermal management system, technical requirements, test methods, etc. of the DC charging connection set, as well as the definition, technical requirements, test methods, inspection rules, etc. of the adapter.

Charging connection sets have a variety of product types and are used in a variety of charging scenarios, facing complex climatic and environmental conditions, and withstanding frequent use and operations by users. The charging connection set becomes the key to charging functionality and reliability. The requirements and specifications for charging connection set given in this document can comprehensively reflect the needs of electric vehicles, charging infrastructure and charging applications for charging connection set. The requirements and specifications for charging connection set given in this document can comprehensively reflect the needs of electric vehicles, charging infrastructure and charging applications for charging connection set.

1 Scope

This document specifies the technical requirements for voltage and current ratings, appearance, structure, environmental adaptability, electrical performance, and mechanical performance of connection set for conductive charging of electric vehicles. It describes the test conditions, test methods, inspection items and other inspection requirements for connection set for conductive charging of electric vehicles.

The document is applicable to AC charging connection set with a frequency of 50 Hz, a rated voltage not exceeding AC 690 V, and a rated current not exceeding 250 A for conductive charging of electric vehicles, as well as DC charging connection set with rated voltage not exceeding DC 1500 V and rated current (duration maximum current) not exceeding 1000 A.

This document does not apply to the charging connection set that uses standard plugs and sockets that comply with GB/T 1002 and GB/T 2099.1 for the plug and socket outlet.

When the charging connection set specified in this document is used for electric vehicles in special places such as water conservancy, mining, construction sites, agricultural operations, or other fields other than road vehicles, additional requirements may be required in terms of the installation location, operating conditions, usage methods,