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

GB/T 10067.101-2023

**Basic specifications for electroheating and electromagnetic processing
installations - Part 101: General requirements for vacuum
electroheating and electromagnetic processing installations**

**电热和电磁处理装置基本技术条件 第101部分：真空电热和电磁处理装置的通用
要求**

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Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting: This document is Part 101 of GB/T 10067 "Basic Technical Conditions for Electrothermal and Electromagnetic Treatment Devices": GB/T 10067 has been issued The following parts have been published:

- Part 1: General part;
- Part 101: General requirements for vacuum electrothermal and electromagnetic treatment devices;
- Part 2: Arc heating device;
- Part 21: Large AC electric arc furnace;
- Part 3: Induction electric heating device;
- Part 31: Medium frequency centerless induction furnace;
- Part 32: Voltage-type frequency conversion multiple medium-frequency centerless induction furnace complete sets;
- Part 33: Power frequency centerless induction copper melting furnace;
- Part 34: Transistor-type high-frequency induction heating device;
- Part 35: Medium frequency vacuum induction melting furnace;
- Part 36: Inductive diathermy device;
- Part 4: Indirect resistance furnace;
- Part 41: Mesh belt resistance heating unit;

1 Scope

Part 101 of China's series on electroheating and electromagnetic processing installations, carrying the general requirements for the vacuum installations within the family - the vacuum furnaces used for heat treatment, brazing, sintering, melting and coating, where the work is done under vacuum precisely because the atmosphere would spoil it. It specifies the product classification, the general technical requirements, the inspection rules, the marking, packaging, transport and storage, and the ordering and supply of vacuum electroheating and electromagnetic processing installations, and describes the corresponding test methods. What distinguishes a vacuum installation from any other electric furnace is that the vacuum is not an accessory but the process. The requirements therefore centre on the vessel and the vacuum system: the leak rate the chamber must hold and how it is measured, the pumping system and the time to reach working pressure, the pressure measurement, and the behaviour of the whole under the thermal cycling that opens and closes every joint in it. Around them sit the requirements common to a furnace - the heating elements and their power supply, the temperature measurement and uniformity in a space where there is no gas to carry heat and everything happens by radiation, the insulation, the cooling, and the controls - and the safety provisions that are peculiar to the type: the interlocks that prevent the chamber being opened under vacuum or heated without cooling, the handling of the process gases where a partial pressure is used, and the electrical safety of a machine drawing large currents into a sealed vessel. Issued on 28 December 2023 and in force since 1 July 2024.

This document stipulates the general product classification, technical requirements, inspection rules, Labeling, packaging, transportation, storage, ordering and supply, and corresponding test methods are described: This document is applicable to work loads melting, heat treating, brazing, sintering, crystal growth, forming and Industrial electric heating and electromagnetic processing devices for drying and other thermal processes, including:

- Vacuum induction furnace;
- Vacuum resistance furnace;
- Vacuum remelting electric arc furnace;
- Vacuum electros slag remelting furnace;
- Electric heating device with electron gun;
- Vacuum plasma furnace;
- Vacuum microwave heating device;
- Vacuum electromagnetic treatment equipment, etc:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 150:1~150:4-2011 Pressure vessels

GB/T 5959:1-2019 Safety of electrothermal and electromagnetic processing devices Part 1: General requirements

GB/T 10066:1-2019 Test methods for electrothermal and electromagnetic treatment devices Part 1: General parts

GB/T 10067:1-2019 Basic technical conditions for electrothermal and electromagnetic treatment equipment Part 1: General parts

GB/T 10067:35-2015 Basic technical conditions for electric heating devices Part 35: Medium frequency vacuum induction melting furnace

JB/T 9691 Method for compiling product models of electric heating equipment

ISO 1609:2020 Dimensions of non-knife flanges for vacuum technology
(Vacuumtechnology-Dimensionsofnon-knife edgeflanges)

ISO 9803 (all parts) Mounting dimensions for vacuum technology piping fittings
(Vacuumtechnology-Mountingdimen-

3 Terms and definitions

The terms and definitions defined in GB/T 10067:1-2019 and the following apply to this document: