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

GB/T 18497.1-2019

Replacing GB/T 18497.1-2001

**Characteristics of electric infrared emitters for industrial
heating - Part 1: Shortwave electric infrared emitters**

工业加热用电红外发射器的特性 第1部分:短波电红外发射器

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Foreword

GB/T 18497 "Characteristics of Electric Infrared Emitters for Industrial Heating" is divided into the following two parts.

--- Part 1. Short-wave electric infrared transmitter;

--- Part 2. Medium and long wave electric infrared transmitter. This part is the first part of GB/T 18497. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part replaces GB/T 18497.1-2001 "Characteristics of electric infrared radiators for industrial heating - Part 1. Short-wave electric infrared radiation The main technical changes compared with GB/T 18497.1-2001 are as follows:

--- Modify the word "radiator" in the standard name and body to "transmitter";

--- Added some normative references, including. GB/T 7287-2008, GB 8702-2014, GB/T 10066.12 and QB/T 4503-2013;

--- Added some terms and definitions, including. "electric infrared emitter", "plate emitter", "heating body", "radiation matrix", "extracting rod (line)" "full heating condition" "stable working state" "working temperature" "electric-thermal radiation conversion efficiency" "radiation surface electric power density" "effective radiant energy ratio", "heating time" and "damage";

--- Removed the term and definition of "rated voltage range";

--- Revised the original terms and definitions, including. "short-wave electric infrared emitter" "bulb-like reflective infrared emitter" "tubular short wave Electric Infrared Transmitter" "Rated Power" "Rated Voltage" "Design Voltage" "Maximum Allowable Temperature of Lamp and Lamp" and "Pressed Parts" Maximum allowable temperature";

--- Adjust the fifth chapter "radiator characteristics" in the original standard to Chapter 4 of

this standard, and change the chapter title to "type structure, specifications and Basic parameters";

---In the classification of type structure, "plate-shaped emitters" and "other shaped structures" have been added;

--- Added Chapter 5 "Technical Requirements" to establish a complete set of performance evaluation indicators for short-wave electric infrared emitters;

--- Added Chapter 6 "Test Method", the test methods of each main performance index directly adopt GB/T 7287-2008;

--- Added Chapter 7 "Inspection Rules";

--- Added Chapter 8 "Marking, Packaging, Transportation and Storage" requirements; which incorporates Chapter 4 "Marking" of the original standard into this chapter. This part was proposed by China Electrical Equipment Industry Association. This part is under the jurisdiction of the National Technical Committee for Standardization of Industrial Electric Heating Equipment (SAC/TC121). This section drafted by: National Infrared and Industrial Electric Heating Product Quality Supervision and Inspection Center, Xi'an Electric Furnace Research Institute Co., Ltd., Dalian University of Technology, Chengdu Xingyijiang Electric Appliance Co., Ltd., Xuchang Infrared Technology Research Institute Co., Ltd., Shanghai Reli Technology Group Limited company, Nanjing Danlian Technology Co., Ltd., Hangzhou Wuyuan Technology Industrial Co., Ltd., National Electric Furnace Quality Supervision and Inspection Center. The main drafters of this section. Zeng Yu, Wu Di, Li Wei, Gu Li, Xie Minghui, Lu Zikai, Li Wei, Zhang Yuming, Ren Anbang, Tong Binbin, Wang Xiaoliang, Wang Yijian. The previous versions of the standards replaced by this section are.

1 Scope

GB/T 18497.1-2019 is the Chinese national standard on characteristics of electric infrared emitters for industrial heating - part 1: shortwave electric infrared emitters, in the field of manufacturing engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 4 June 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 January 2020. Classification: ICS 25.180.10, CCS K61. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This part of GB/T 18497 specifies the type structure, specifications and basic parameters of short-wave electric infrared transmitters, technical requirements, test methods. Law, inspection rules, marking, packaging, transportation and storage. This section applies to

electrical infrared emitters (hereinafter referred to as transmitters) with peak radiation wavelengths between 0.78 μ m and 2 μ m for industrial heating. For applications in scientific research, agriculture, health care, building heating, transportation, food, aquaculture, etc., please also refer to this section. use.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1406.1-2008 Types and dimensions of caps - Part 1. Screw caps

GB/T 2900.23 Electrotechnical terminology industrial electric heating device

GB 7000.1-2015 lamps - Part 1. General requirements and tests

GB/T 7287-2008 Infrared radiant heater test method

GB 8702-2014 Electromagnetic environment control limit

GB/T 10066.12 Test methods for electric heating devices - Part 12. Infrared electric heating devices
QB/T 3736-1999 Standard method for measuring the temperature of the sealing part of quartz halogen lamps
QB/T 4503-2013 coated infrared halogen heating tube

3 Terms and definitions

The following terms and definitions as defined in GB/T 2900.23, GB/T 10066.12 and GB/T 7287 apply to this document.

3.1 Electric infrared transmitter electricinfraredemitter A transmitter that converts input electrical energy primarily into infrared radiation energy.

3.2 Shortwave electric infrared transmitter shortwaveelectricinfraredemitter The main radiation short-wave infrared, that is, the infrared radiation with a peak radiation wavelength of 0.78 μ m~2 μ m and the purpose of emitting infrared radiation Projector.

3.3 Light bulb-like reflective infrared emitter bulbreflectinginfraredemitter A short-wave electric infrared emitter equipped with a heating element such as a tungsten wire or a carbon fiber in a hermetically sealed and inert gas-containing bulb.

Note. A portion of the bulb is specially shaped and sprayed with a reflective coating to create thermal radiation.