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

GB/T 15318-2010

Replacing GB/T 15318-1994

**Monitoring and testing for energy saving of heat treatment
electric furnace**

热处理电炉节能监测

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and Definitions
- 4 Heat treatment furnace energy monitoring project
 - 4.1 Comparable products of electricity consumption
 - 4.2 Furnace surface temperature
 - 4.3 Air furnace heating time
 - 4.4 Air furnace power loss ratio

Foreword

This standard replaces GB/T 15318-1994 "industrial heat treatment furnace energy-monitoring methods." This standard compared with GB/T 15318-1994, the main changes are as follows:

- Standard name to read. "heat treatment furnace energy monitoring";
- Adjust and standardize the "scope" one chapter (see Chapter 1);
- Standardized "Normative references" quotations, adjusted normative document reference level (see Chapter 2);
- Added "empty furnace power loss ratio" is defined (see Chapter 3, 3.2);
- Increasing the terms and tables (see 4.3,4.4,5.7, 5.8 table 3,6.3,6.4);
- Cancel the original standard of Tables 1 and 3;
- Original standard "K2 product (workpiece) Category conversion coefficient" is adjusted to current standard "K1 product (workpiece) material conversion process Factor ", while adjusting the original standard bar Table 2 (see
- Original standard "K4 heat treatment process of conversion coefficient" is adjusted to current standard "K2 commonly used heat treatment process conversion coefficient" (see 5.4.3, Table 2);
- 6.1 commonly used in heat treatment furnace provided a clear "bk" value;
- Adjust the original standard table 5 furnace, rated temperature and surface temperature rise (see Table 4);

--- Energy monitoring standardized reporting format (see Appendix A). Appendix A of this standard is a normative appendix. This standard by the National Standardization Technical Committee for Energy and management proposed. This standard by the National Standardization Technical Committee Sub-Committee on Energy Management and Energy Management. This standard is mainly drafted by: East of Jiangsu Feng Technology Co., Ltd., Guangdong Siltronic Metal Technology Co., Ltd., Beijing Electromechanical Research The Chinese Society of Mechanical Engineering Branch of the heat treatment. The main drafters of this standard. FAN Dong-li, the Jianhua, Dong Xiaohong, Liu Su people, Chen Zhiqiang, Gulin Lin. This standard replaces the standards previously issued as follows:

--- GB/T 15318-1994. Heat treatment furnace energy monitoring

1 Scope

GB/T 15318-2010 is the Chinese national standard on monitoring and testing for energy saving of heat treatment electric furnace, in the field of energy and heat transfer 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 10 November 2010 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 February 2011. Classification: ICS 27.010, CCS F01. 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 standard specifies the content monitoring heat treatment furnace energy monitoring, monitoring methods and assessment indicators. This standard applies to periodic and continuous furnace. This standard does not apply to energy monitoring induction heating and plasma heating and other equipment.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 10066.1-2004 Test methods for electroheat installations - Part 1. General section

GB/T 10066.4-2004 Test methods for electric equipment - Part 4. Indirect resistance furnaces

GB/T 10201-2008 rational use of electricity heat treatment guidelines

GB/T 13324-2006 term heat treatment equipment

GB/T 17358-2009 heat treatment power consumption calculation and measurement method

3 Terms and Definitions

GB/T 10201-2008 and GB/T 13324-2006 established in the following terms and definitions apply to this standard.

3.1 Comparable products of electricity consumption

comparableelectricityconsumptionofunitproduct Depending on the heat treatment products and processes, according to the relevant provisions of the production of qualified products translated into comparable standard product (reduced mass), namely, Operators arrive at the actual power consumption and the production of quality products equivalent ratio. Units of kilowatt-hours per kilogram ($\text{kW} \cdot \text{h/kg}$).

3.2 Air furnace power loss ratio powerratioofnoloadloss The percentage of empty furnace power loss (P_0) with a rated power (P_C), see formula (1). $R = P_0/P_C \times 100\%$ (1)

4.4 Air furnace power loss ratio

5 heat treatment furnace energy monitoring method

5.1 Test conditions Testing should be carried out in normal operating conditions of production in an electric furnace.

5.2 Testing time Monitoring a production test time period.