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

GB/T 30120-2013

**Temperature -- Electromotive force (EMF) tables for
pure-element thermocouple combinations**

纯金属组合热电偶分度表

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard uses the translation method identical with IEC 62460:2008 "Pure metallic composition thermocouple indexing table." Correspondence between the consistency of the standards of international documents and normative references of the following documents.

--- GB/T 16839.1-1997 Thermocouples - Part 1. indexing table (IEC 60584-1:1995, IDT).

Given IEC 62460:2008 Annex A and Annex B contain the normative content of "coefficient indexing function" and informative content "Approximate inverse function of the factor" of

this standard, the following editorial changes made.

--- Original IEC 62460:2008 Annex A "gold - platinum thermocouple coefficient" split Appendix A (normative) "gold - platinum thermoelectric Even coefficient indexing function" and Appendix C (informative) "gold - platinum thermocouple approximate inverse function of the factor";

--- Original IEC 62460:2008 Appendix B "platinum - palladium thermocouple coefficient" split Appendix B (normative) "Platinum - Palladium Thermoelectric Even coefficient indexing function" and Appendix D (informative) "platinum - palladium thermocouple approximate inverse function of the factor";

--- Appendix C, corresponding to 1000 °C electromotive force by the 17085μV modify 17085.3μV, and indexing table and Appendix A Paul Hold the same;

--- Appendix B and Appendix D, corresponding to 1500 °C electromotive force by the 22932μV to 22931.7μV, keep up with the indexing table Consistent.

The standard proposed by China Machinery Industry Federation.

This standard by the national industrial process measurement and control Standardization Technical Committee (SAC/TC124) centralized.

This standard was drafted. Shanghai Industrial Automation Instrument Research Institute, Anhui days and Culture Co., Ltd., Chongqing City is the temperature Instrument Co., the company.

1 Scope

This standard specifies the gold - platinum thermocouples and platinum - palladium thermocouple temperature - electromotive force (EMF) and emf - temperature and as a function of the indexing table formula. Meanwhile, in order to facilitate the use of this standard also provides a temperature - electromotive force as a function of the approximate function.

This standard specifies the form and function of the indexing formula for using the percentage by weight of not less than 99.999% purity of gold, platinum and purity of not 99.99% less than the gold-palladium composition - platinum thermocouples and platinum - palladium thermocouple.

The standard does not specify thermocouple emf - temperature tolerance initial values. If desired, the allowance should be made thermocouple wire manufacturers and users Association Suppliers OK.

The temperature used in this standard based on the 1990 International Temperature Scale (ITS-90), in degrees Celsius, symbol $t_{90}/^{\circ}\text{C}$. Electromotive force (EMF) in microvolts, symbol $E/\mu\text{V}$.

This standard does not relate to a combination of pure metals and extend the thermocouple wire compensation. Their use is determined by the manufacturer of the problem in consultation with users.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

IEC 60584-1 Thermocouples Part 1. indexing table (Thermocouples-Part 1. Referencetables)

3 Terms and Definitions

The following terms and definitions apply to this document.

Thermocouple type thermocoupletypes this standard covers the following types of thermocouple wire.

King - platinum (Au/Pt, Au/Pt);

· Platinum - palladium (Pt/Pd, Pt/Pd).

When identifying thermocouple, according to international practices (such as IEC 60584-1 requirements) will be placed in front of the cathode.

ITS-90 defines a fixed point thermoelectric value thermoelectricvaluesattheITS-90fixedpoints Triple Point is defined in the corresponding indexing table temperature range (TP), the value of the melting point (MP) and freezing point (FP) of. S is the Seebeck coefficient temperature the first derivative of electromotive force - degrees.

Note: The Seebeck coefficient is small Seebeck potential change caused by the temperature difference between the rate of change of the Seebeck coefficient in units of microvolts per degree Celsius, symbol $S/(MV/^\circ C)$.

4 Indexing table and functional

This standard includes the following indexing table.

King - Platinum Thermocouple. EMF - temperature relationship at intervals of 1 °C;