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

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**Technical specification of thermal transfer sign for power
engineering**

电力工程热转印标识技术规范
(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Work Part 1: Standard Structure and Compilation".

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard was proposed and managed by the China Electricity Council.

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1 Scope

This standard specifies the classification, technical requirements, inspection rules, packaging and storage, installation, operation and maintenance of thermal transfer labels for power engineering Claim.

This standard applies to heat transfer marks used in the construction, operation and maintenance of power projects.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 191 Packaging, storage and transportation pictorial signs GB/T 2893 safety color
GB/T 2894 Safety signs and guidelines for their use GB/T 2792 Test method for peel strength of adhesive tape GB 4208 Shell protection grade (IP code) GB/T 4851 Test method for stickiness of adhesive tape GB/T 8807 Plastic mirror gloss test method GB/T 7706 Letterpress decoration printed matter GB 9754 Paints and varnishes Determination of 20°, 60° and 85° specular gloss of paint films without metallic pigments GB/T 29768 Information Technology Radio Frequency Identification 800-900MHz Air Interface Protocol GB/T 10125 Artificial atmosphere corrosion test salt spray test GB/T 10592 Technical conditions of high and low temperature test chamber GB/T 11547 Determination of resistance of plastics to liquid chemical reagents GB/T 17200 Technical requirements for tensile, compression and bending testing machines for rubber and plastics GB/T 18833 Road traffic reflective film GB/T 28165 General Specification for Thermal Printer GB/T 28439 General Specification for Thermal Transfer Ribbon GB/T 30435 Electric heating drying oven and electric heating blast drying oven GB/T 1040 Determination of tensile properties of plastics GB/T 2423.38 Environmental testing of electrical and electronic products GB/T 16422.3 Plastic laboratory light source exposure test method Part 3: Fluorescent ultraviolet lamp JT/T 690 Retroreflective photometric performance test method DL 5190 Technical Specification for Power Construction IEC 61964 Integrated Circuit-Memory Device Pin Configuration

3 Terms and definitions

The terms defined in GB/T 28165 and GB/T 28439 and the following terms and definitions apply to this document.

Printing stock

It is a material that is attached to the color of the polymer ribbon to show the content of graphics and text, and is a carrier of thermal transfer content.

Thermal transfer sign thermal transfer sign Logo made using thermal transfer technology.

Radio frequency thermal transfer sign Thermal transfer logo with radio frequency tag.

Luminous thermal transfer sign the substrate is usually a thermal transfer mark of a homogeneous polymer film.

Reflective thermal transfer sign the substrate is a thermal transfer logo of glass bead

reflective film or microprism reflective film.

4 Categories

4.1

According to the difference in gloss and reflectivity of thermal transfer marks, thermal transfer marks for power engineering can be divided into bright and reflective thermal transfer marks.

4.2

According to the different functions of the logo, the thermal transfer logo of power engineering can be divided into graphic thermal transfer logo, radio frequency thermal transfer logo, two-dimensional Code thermal transfer logo.

5.1 Appearance requirements

5.1.1

The thermal transfer logo should be of uniform thickness and neat edges.

5.1.2

The heat transfer logo should have a smooth surface, no stains, no scratches, no bubbles, no streaks, and no defects.

5.1.3

The thermal transfer logo should be clear with clear graphics, uniform color, uniform gloss, and flawless spots.

5.1.4

The surface of the thermal transfer logo shall be printed at one time using thermal transfer technology, without a film seal structure.

5.2.1 Substrate

The substrate should be a homogeneous polymer material that is resistant to corrosion, abrasion, and aging.

5.2.2 Thermal transfer ribbon

The thermal transfer ribbon should be a polymer resin-based ribbon, which should meet the requirements of GB/T 28439 and GB 2893.

5.3 Ribbon printing performance requirements

The thermal transfer marking ribbon print has abrasion resistance and peeling resistance.

5.4 Thermal dimensional changes

At a constant temperature of $80^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 24h, the size change rate of the thermal transfer mark should be less than or equal to 0.1%.

5.5 Sticky performance

When the weight is suspended for 360h under the condition of 2kg, the thermal transfer mark has no displacement and does not fall off.

5.6 Salt spray corrosion resistance

When exposed to a 5% sodium chloride solution atomization environment at $35^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 120h, the surface of the thermal transfer mark should not be faded, wrinkled, or wrinkled.

Foaming and cracking, while meeting the bonding performance requirements.

5.7 High and low temperature resistance

Keep it at $-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 72h and at $70^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 24h. The heat transfer label should not be glued or peeled off.

5.8 Corrosion resistance

The heat transfer mark should have the ability to resist acid, alkali, salt, organic solvent, cleaning agent, etc.

5.9 Weather resistance

The heat transfer mark should have good weather resistance. After the artificial accelerated aging of the fluorescent ultraviolet lamp is not less than 3600h, the gray level of the substrate is large the attenuation rate of black pattern is less than or equal to 5%, and the attenuation rate of other colors is less than or equal to 20%; the surface should not have cracks, wrinkles, Damage such as nicks, dents, bubbles, erosion, peeling, chalking or deformation; there should be no shrinkage of more than 2% from any side, nor There are traces of the thermal transfer logo warping or detaching from the edge of the bottom plate.

5.10 Photometric performance

The photometric performance of the thermal transfer mark is expressed by the retroreflective coefficient, and the retroreflective coefficient RA should meet the requirements of Table 1-7 in GB/T 18833.