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

GB/T 21094-2007

Pre-heat requirements for starterless tubular fluorescent lamps

无启动器管形荧光灯预热要求

(English Translation)

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Foreword

This standard is identical with IEC 60882. 1986 "No starter tubular fluorescent lamps preheat requirements" (in English).

This standard is equivalent translation IEC 60882. 1986.

For ease of use, this standard made the following editorial changes.

- a) "this International Standard" be replaced by "this standard";
- b) use a decimal point instead of a decimal point ", ". ";
- c) Remove IEC 60882. 1986 Foreword.

The standard proposed by China National Light Industry Council.

This standard by the National Standardization Technical Committee of electrical lighting (SAC/TC224) centralized.

This standard was drafted. Beijing Lighting Research Institute, the National Electric Light Source Quality Supervision and Inspection Center (Shanghai), Zhongshan Europe Light Decorative plants, the National Electric Light Source Quality Supervision and Inspection Center (Beijing).

1 Overview

This standard specifies the warm-up with a cathode and using a frequency of 50Hz or 60Hz without starter circuit tubular fluorescent lamp cathode heating the basic technical requirements. On cathode heating conditions is concerned, this requirement enables the lamp to achieve reliable performance requirements. This work lamp for town Flow should be able to provide a cathode heating voltage and current meet these basic requirements.

When a predetermined heating of the cathode, the two states to be considered a cathode, which are.

- a) start-up phase. In this case, the cathode heating function is to facilitate the triggering of the arc;
- b) Working stage. At this time, the cathode heating function should be able to maintain the gas discharge.

2.1.1 Cathode minimum temperature

For the stable trigger, the heating temperature should be higher than the cathode emission temperature, since cold start with a warm-cathode lamps can damage the female Emitter electrode, thereby shortening the life of the lamp. Before arc arcing, it requires a minimum of electric energy cathode fully heated. This energy can be expressed as shown by the minimum current of the cathode, or as a minimum voltage at both ends of the cathode, both with the cathode resistor values chosen arbitrarily related.

Furthermore, it should take into account the start-up time, in order to ensure lamp life to meet the requirements, the time should be as short as possible. To test the ballast design into account changes in ambient temperature and light characteristics, so the design of the ballast open circuit voltage much higher than the light emitted when the starting voltage. If Yin Pole has not been sufficiently heated quickly, the open circuit voltage can cause the lamp cold start, should prevent this from happening. So-called "Chung the current "launch time can achieve the desired temperature is maintained at a very short levels. When the cathode is cold, if the transformer or ballast the internal resistance is small enough, the cathode resistance is small, and there is a large current through the cathode.

Other methods can shorten the warm-up time are. a design with a high-voltage ballasts preheat, after the warm-voltage arc arcing it big Greatly reduced, or, irrespective of the value of the cathode voltage, so that a large current through the cathode, the arc after the arc, the current is also reduced.

From the viewpoint of the lamp is triggered, the ballast is preferably designed to preheat the high voltage or current type, instead of designing a low glow voltage or current Style.

2.1.2 The maximum temperature of the cathode Due to prevent excessive evaporation of the cathode material, in addition to a predetermined lower limit temperature of the cathode, but also need to define the upper limit temperature of the cathode value. However, in many cases, the starting time is very short, so that serious damage will not occur even in a very large voltage preheating time.

Another phenomenon occurs at a high voltage at both ends of the cathode, the so-called transverse arcing. If the internal impedance of the voltage source is small, this will discharge current increases. Excessive current can damage the internal end of the cathode, the cathode lead and transformer windings. on the other hand, Transverse arcing help trigger arc discharge, some designers to use this feature. If you can ensure that the internal ballast winding Impedance sufficient to limit this current, this practice to meet the

requirements.

In order to prevent excessive evaporation of the cathode, it should be established with any resistance value related to a maximum preheat current or voltage, depending on the involved What kind of circuit (see Chapter 3). If this maximum limit is large enough so that the cathode ends laterally arcing, then arcing in the transverse direction During the state needs to have a maximum current supplementary technical requirements. Also we need to add the test to verify that the current (see 3.3).

2.2.1 Minimum heated cathode

After the arc arc, are two kinds of cathode current (arc current and cathode heating current) heating. Although only the arc current will Heated to a sufficient extent cathode lamp operation, however, provide additional cathode heating throughout the entire exercise will significantly extend the life of the lamp. because Here, the hope that during the operation of the lamp a predetermined minimum cathode heating voltage or current. Under certain circumstances, such as lamp dimming circuit GB/T 21094-2007/IEC 60882. 1986