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**Test method for heat loss coefficient of parabolic trough solar  
receiver tube**

槽式太阳能集热管热损系数测试方法

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## Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents". Drafting.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

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Test method for heat loss coefficient of parabolic trough solar collector tube

## 1 Scope

This document specifies the instruments, testing platform, testing conditions, testing preparation, and testing procedures for measuring the heat loss coefficient of parabolic trough solar collectors.

Heat loss coefficient calculation and test report.

This document applies to the steady-state thermal equilibrium method for testing parabolic trough solar thermal power generation systems and trough solar collector systems.

The heat loss coefficient of solar collector tubes, and the solar thermal power generation system and other linear Fresnel solar collector systems.

The heat loss coefficient test for solar collector tubes shall be conducted in accordance with the relevant procedures.

## 2 Normative references

GB/T 12936

GB/T 26972

## 3 Terms and Definitions

The terms and definitions defined in GB/T 12936 and GB/T 26972, as well as the following terms and definitions, apply to this document.

### 3.1 metal absorber tube

A metal tube with a solar selective absorption coating on its outer surface, used to absorb solar radiation and convert it into heat energy of the heat transfer fluid inside the tube.

### 3.2 [Source. GB/T 26972-2011, 4.40, with modifications]

A vacuum heat collection tube with open ends.

Note. It mainly consists of a glass tube, a metal heat absorption tube, a vacuum jacket, and a buffer component for axial expansion and contraction.

### 3.3 heat loss coefficient

The heat loss power per unit length of a trough solar collector tube to the environment under a given temperature condition.

Note. The unit is watts per meter (W/m).

### **3.4 main heater**

A rod-type electric heater placed inside a metal heat-absorbing tube as the main heating element.

### **3.5 auxiliary heater**

A disc-shaped electric heater used for auxiliary heating of the ends of trough-type solar collector tubes.