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

GB/T 7190-1987

Replacing GB/T 7190.1-2008

**Mechanical draft cooling towers -- Part 1: Medium and small
open cooling towers
(English Translation)**

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Foreword

GB/T 7190 "Mechanical Ventilation Cooling Tower" is divided into three parts.

--- Part 1. Small and medium-sized open cooling towers;

--- Part 2. Large open cooling towers;

--- Part 3. Closed cooling tower.

This part is the first part of GB/T 7190.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 7190.1-2008 "glass fiber reinforced plastic cooling towers Part 1. Small and medium-sized glass fiber reinforced plastics Cooling Tower".

The main changes in this section compared with GB/T 7190.1-2008 are as follows.

--- The standard name was modified by "Glass fiber reinforced plastic cooling tower Part 1. Small and medium-sized glass fiber reinforced plastic cooling tower" Mechanical Ventilation Cooling Tower Part 1. Small and Medium Open Cooling Towers;

--- Revised the scope of application, modify the "mixed structure open cooling tower" to "countercurrent, cross flow mechanical ventilation open cooling tower" (see Chapter 1, Chapter 1 of the 2008 edition);

--- Removed the reference standard for glass fiber reinforced plastic raw and auxiliary materials, increased the structure of fiber reinforced composite pultruded profiles, noise Reference standards for acoustic measurement correction techniques (see Chapter 2, Chapter 2 of the 2008 edition);

--- Added five terms and definitions such as "mechanical ventilation open cooling tower", deleted the "humidity of wet air" and "nozzle" terminology Some terms and definitions have been modified (see Chapter 3, Chapter 3 of the 2008 edition);

--- Standard design conditions are modified to standard operating conditions and are classified into standard operating conditions I and standard operating conditions II (see

5.1.1, 2008 edition) 5.1.1);

---The noise index level is changed from ultra low noise, low noise, common type and industrial type to II, III, IV and V, respectively.

Change some indicators and increase the level I noise level (see 5.2, 5.2 of 2008 edition);

--- Increase the energy efficiency rating and divide it into 1st, 2nd, 3rd, 4th and 5th grades according to the power consumption ratio (see 5.3, 2008 edition) 5.3);

--- The drift rate was revised from 0.015% to 0.010% (see 5.4, 5.4 of the 2008 edition);

--- Increased the performance requirements of composite parts such as molded and pultruded profile products, and removed the properties of resin content, curing degree and Barcol hardness Requirements (see 5.5, 5.5.2, 5.5.3, 5.5.5 for the 2008 edition);

--- Increase the appearance of metal parts and hot dip galvanizing layer requirements, remove the provisions on the handling of embedded parts (see 5.5.2, 5.6 of the 2008 version);

--- Modify the type test and decision rules (see 7.3.3.2, 7.3.3b of the 2008 edition);

--- Increased environmental conditions for use of cooling tower products (see 9.7);

--- The test report is given in the corresponding appendix (see Appendix A, Appendix C, Appendix D, Appendix E, Appendix F, 9.7 of 2008 edition);

--- The calculation method of the cross-flow tower cooling number is modified from the table look-up method to the analytical method (see A.6.4, 2008 edition of A.6.4);

--- Added cooling capacity calculation example (see Appendix B);

--- Revised the power consumption ratio calculation formula (see Appendix E, Appendix D of the 2008 edition).

This part was proposed by the China Building Materials Federation.

This part is under the jurisdiction of the National Fiber Reinforced Plastics Standardization Technical Committee (SAC/TC39).

This section is responsible for drafting units. Beijing FRP Research and Design Institute Co., Ltd., China Institute of Water Resources and Hydropower Research, Shanghai University of Technology, Tsinghua University, China Architectural Design Institute Co., Ltd.

Participated in the drafting of this section. Jiangsu Seagull Cooling Tower Co., Ltd., Guangzhou Kancent Technology Development Co., Ltd., Shanghai Jinri Cooling Equipment Co., Ltd., Hunan Yuanheng Technology Co., Ltd., Dalian Sidde Environmental Equipment Co., Ltd., Xinling Air Conditioning (Fogang) Co., Ltd.

Zhejiang Jinling Refrigeration Engineering Co., Ltd., Zhejiang Shangfeng Cooling Tower

Co., Ltd., Zhejiang Dongjie Cooling Tower Co., Ltd.

1 Scope

This part of GB/T 7190 specifies the product classification and marking, requirements, test methods, inspection rules and standards for small and medium-sized open cooling towers.

Zhi, packaging, transportation, storage and others.

This section is applicable to counter-flow, cross-flow mechanical ventilation open cooling towers with single tower cooling water volume less than 1000m³/h and water-filled packing.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

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

GB/T 1449 fiber reinforced plastic bending performance test method GB/T 2518 continuous hot-dip galvanized steel sheet and strip GB/T 8924 Fibre reinforced plastics - Determination of burning performance - Oxygen index method Technical requirements and test methods for hot-dip galvanized coating of GB/T 13912 metal-clad steel parts GB/T 31539-2015 Structural fiber reinforced composite pultruded profiles HJ706 Environmental Noise Monitoring Technical Specification Noise Measurement Correction

3 Terms and definitions

The following terms and definitions apply to this document.

Mechanical ventilation open cooling tower mechanical draft open cooling tower A device or device that uses forced air ventilation and direct contact heat exchange between the cooling water and the air to transfer the heat of the cooling water to the atmosphere.

Filler diameter fildepth the horizontal packing of each side of the cross-flow cooling tower does not include the horizontal distance between the inlet and outlet sections between the inlet and outlet air.

Gas-water ratio air/waterratio the ratio of the mass air flow (kg/h) of the tower to the cooling water mass flow (kg/h).

Thermal performance curve thermal performance curves Cooling tower cooling number and gas-water ratio curve.

Standard working conditions Uniform operating conditions for evaluating cooling tower performance, including tower air dry bulb temperature, wet bulb temperature, atmospheric

pressure, tower water temperature, and tower Water temperature.