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

GB/T 7190.1-2018

**Mechanical draft cooling towers - Part 1: Medium and small
open cooling towers**

机械通风冷却塔 第1部分：中小型开式冷却塔

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions

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);

1 Scope

Part 1 of China's national standard for mechanical draft cooling towers, covering medium and small open towers. An open cooling tower rejects heat by evaporating a fraction of the water passing through it, which is why it can cool water below the ambient air temperature and why it is the standard means of heat rejection for air conditioning plant, refrigeration and industrial process cooling. Its performance rests almost entirely on the fill - the packing that spreads the water into a thin film over a large surface in contact with the air - and on the balance between airflow and water loading, which is what the counterflow and crossflow arrangements name. The consumption that matters is water rather than power: a tower evaporates about one and a half per cent of its circulating flow, and the rest of the water loss is drift and the blowdown needed to stop dissolved solids concentrating. This part specifies the product classification and marking, requirements, test methods, inspection rules, marking, packaging, transport and storage, for counterflow and crossflow open towers below 1000 cubic metres an hour with water-wetted fill.

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.

3.1 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.

3.2 Filler diameter fill depth 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.

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

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

3.5 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.