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

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Replacing GB/T 25858-2010

Technical specification for precision temperature control units

精密温控机组技术规范

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5.1 General Requirements

5.1.1 The unit shall be manufactured in accordance with the drawings and technical documents approved according to the prescribed procedures.

5.1.2 All components of the unit should be installed firmly and reliably, pipeline accessories should be installed neatly, and the compressor should have anti-vibration measures.

5.1.3 The unit shall use non-toxic, odorless, and flame-retardant thermal insulation materials, and there shall be no condensation on the insulation layer during normal operation of the unit. produce.

5.1.4 The unit can be equipped with a liquid circulation pump according to user requirements, and its flow rate and head should be able to ensure the normal operation of the unit.

5.2 Performance Requirements

5.2.1 Cooling capacity The actual cooling capacity of the unit should not be less than 95% of its nominal cooling capacity.

5.2.2 Cooling power consumption The actual cooling power consumption of the unit should not exceed 110% of its nominal cooling power consumption.

5.2.3 Static pressure of the outlet air The static pressure of the air outlet of an

environmentally controlled unit should not be lower than 90% of the nominal value.

5.2.4 Pressure difference between supply and return water of the unit For chilled water units equipped with water pumps, the pressure difference between the supply and return water should not be less than 95% of the nominal value.

5.2.5 Control Accuracy Environmental control units. For different precision types of units, when tested according to the provisions of 6.4.4, the deviation of the outlet air temperature and humidity from the target temperature and humidity. Within the corresponding control accuracy range, the number of measuring points should not be less than 95% of the total number of measuring points. The control accuracy requirements for environmental control units are shown in Table 3. Water chiller units. For different precision types of units, when tested according to the provisions of 6.4.4, the deviation between the chilled water outlet temperature and the target temperature is... Within the corresponding control accuracy range, the number of measuring points should not be less than 95% of the total number of measuring points. The control accuracy requirements for chilled water units are shown in Table 4.

5.2.6 Load shock recovery time The unit should clearly state the recovery time of the target temperature when the load changes, and the measured value should not be greater than the stated value.

5.2.7 Disturbance Response The unit should clearly indicate the disturbance response level when the load is disturbed. Chiller units. For units of different precision and response levels, when tested according to the provisions of 6.4.6, the outlet water temperature and the target temperature... Within the corresponding control accuracy range, the number of measuring points should not be less than 95% of the total number of measuring points. Environmental control type units. When units of different precision levels and response levels are tested according to the provisions of 6.4.6, the outlet air temperature and humidity are compared with the target. The number of measuring points should not be less than 95% of the total number of measuring points if the deviation of temperature and humidity is within the corresponding control accuracy range.

5.2.8 Power supply adaptability The power supply adaptability of the unit meets the following requirements.

a) The unit can operate normally within a range of $\pm 10\%$ of rated voltage and $\pm 2\text{Hz}$ of rated frequency;

b) It can sound an alarm when the unit's power supply fails.

5.2.9 Display and storage functions Units configured with display and storage functions should meet the following requirements.

a) The unit can display parameters such as temperature and relative humidity via a display screen or controller, and can also display information such as the operation of regulating

valves, fans, and compressors. The operating status of the components;

b) The unit can display fault and alarm information and store fault and alarm records.

5.2.10 Alarm and Protection Functions When an alarm or protection is triggered, the unit should be able to display the alarm information and execute the corresponding action according to the preset control logic.

5.2.13 Leakage Current For units with a nominal cooling capacity of no more than

24.36 kW, the leakage current should not exceed 2 mA/kW (calculated based on rated input power). (Calculated), and the maximum value should not exceed 30mA. For units with a nominal cooling capacity greater than 24.36kW, the leakage current should not exceed 2mA/kW. (Calculated based on the nominal cooling power consumption value), and the maximum value should not exceed 30mA.

5.2.14 Electrical strength During the electrical strength test, no breakdown or flashover should occur.

5.2.15 Grounding device The generating unit should have a permanent and reliable protective grounding device, and easily accessible metal parts should be reliably connected to the grounding device. The unit's grounding terminal... The unit and its clamping device should not be used for any purpose other than protective grounding; the grounding device connection of the unit should be fully and securely secure, and the protective grounding should be in place. The components of the circuit should be made of metals with sufficient corrosion resistance; the protective grounding circuit should be constructed in accordance with the provisions of

8.2 in GB/T 5226.1-2019. Logo.

5.2.16 Electromagnetic Compatibility

5.2.16.1 The terminal interference voltage, interference power, and intermittent interference of the unit shall not exceed the limits specified in GB 4343.1.

5.2.16.2 The harmonic current of the unit shall not exceed the harmonic current limit specified in GB 17625.1.

6.1 Test Conditions

6.1.1 Site Environment The testing room should have sufficient space to ensure the unit meets installation requirements. The size of the testing room should allow for a minimum distance between the unit and the surrounding walls. The distance should be no less than 0.9m, and the minimum distance from the air outlet to the wall should be no less than 1.8m. After the unit is installed and in place before the test (without being powered on), the

distance should be... The air velocity at any point 0.5m away from the unit should not exceed 2m/s. The test apparatus should be able to simulate the actual operating conditions of the unit.

6.1.2 Experimental Resources

6.1.2.1 The power supply shall be able to provide the rated voltage and rated frequency required by the unit, and shall meet the following requirements.

- a) The frequency deviation should not exceed $\pm 0.5\text{Hz}$;
- b) The voltage deviation should not exceed $\pm 5\%$.

6.1.2.2 The power supply for the simulated load shall meet the following requirements.

- a) Frequency deviation not greater than $\pm 0.3\text{Hz}$;
- b) Voltage deviation is no greater than $\pm 1\%$.

6.1.2.3 The quality of cold water shall comply with the requirements of GB/T 29044.

6.1.3 Instruments and Meters The instruments and meters used for testing environmental control type units shall comply with the provisions of GB/T 17758, and the instruments and meters used for testing water chiller type units shall comply with the provisions of GB/T 17758. According to GB/T 10870, the accuracy of temperature measuring instruments should meet the requirements of Table 5 when testing units of different accuracy levels.

Table

5. Accuracy of Instruments Used in Testing Precision Temperature Control Units

Type of unit under test	Temperature measuring instruments	Precision
High-precision and ultra-precision models		$\pm 0.01^\circ\text{C}$
		$\pm 0.1^\circ\text{C}$

6.1.4 Measuring Device

6.1.4.1 The measurement of the dry and wet bulb temperatures and the static pressure of the outlet air of the unit shall comply with the provisions of GB/T 17758.

6.1.4.2 The measurement of the supply and return water pressure difference, temperature and flow rate of the unit shall comply with the provisions of GB/T 10870 and GB/T 18430.1.

6.2 Installation

6.2.1 The unit shall be installed securely and meet the requirements of the product installation and operation manual or comply with the relevant regulations of the manufacturer.

6.2.2 Charge the refrigerant according to the type and amount indicated on the nameplate. The amount of refrigerant should not be adjusted during the test.