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Test method of forced convection air cooled refrigerant condensers for establishing performance

强制风冷制冷剂冷凝器性能试验方法

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Table of Contents

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.

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Test methods for the performance of forced air-cooled refrigerant condensers

1 Scope

This document describes the test methods for the performance of forced air-cooled refrigerant condensers.

This document applies to forced-air-cooled refrigerant condensation systems where the air side exchanges heat with the refrigerant on the other side (either through a phase change or by being cooled) without ductwork. Gas cooler/gas cooler.

This document does not apply to refrigerant condensers/gas coolers connected to ductwork.

This document does not apply to complete sets of products primarily installed in computer rooms or to condensing units/gas cooler units pre-assembled in the factory.

This document does not apply to condensers with subcoolers.

2 Normative references

GB/T 755

GB/T 1236

GB/T 27025

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

One of the components of a refrigeration system, refrigerant vapor releases heat to the air and condenses, and the heat is dissipated through the mechanical movement of the fan and fan driver.

It is released into the air from the surface of the condenser.

Note 1.This heat also includes the heat dissipated and absorbed by the fan coil.

Note 2.The forced air-cooled refrigerant condenser in this document is hereinafter referred to as the "condenser".

3.2

One of the components of a refrigeration system, air circulates across the dry surface of a heat exchanger via the mechanical motion of a fan and fan motor, carrying the refrigerant...

The heat is carried away, thus cooling the refrigerant.

Note. In this document, the forced air-cooled refrigerant gas cooler is hereinafter referred to as "gas cooler".

3.3 refrigerant

The fluid used for heat transfer in a refrigeration system absorbs heat at low temperatures and low pressures, and releases heat at high temperatures and high pressures.

Heat transfer is achieved through changes in the state of the fluid (phase change).

3.4 Heat dissipation capacity

The total heat released by the refrigerant. Total heat is equal to the refrigerant mass flow rate multiplied by the refrigeration at the inlet and outlet of the condenser/gas cooler.

The product of the enthalpy difference.

3.5 Condensing pressure/Gas cooling pressure

Refrigerant pressure at the inlet of the condenser/gas cooler.

3.6 Evaporating pressure

The refrigerant pressure at the outlet of the calorimeter.

Note. This method is only applicable to low-pressure calorimetry.

3.7 calorimeter pressure

The pressure on the secondary fluid side of the calorimeter.

Note. This applies only to low-pressure calorimetry and high-pressure calorimetry with indirect heat conduction.

3.8 air inlet temperature

The average dry-bulb temperature of the air flowing into the inlet of the condenser/gas cooler, which is related to the local air field.

3.9

The average temperature of the air surrounding the calorimeter, which can exchange heat with the calorimeter.

3.10

The average temperature of the air inside a calorimeter that can exchange heat with the environment.

3.11

Under certain pressure, the temperature at which the gaseous refrigerant inside the condenser begins to condense into a liquid.

3.12

The temperature at which a non-azeotropic refrigerant liquid begins to boil under certain pressure, that is, the temperature at which the refrigerant liquid just begins to vaporize.

3.13

The temperature of refrigerant vapor at the inlet of the condenser/gas cooler.