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ANSI/ASHRAE Standard 64-2020
Methods of Laboratory Testing Remote Mechanical-Draft Evaporative Refrigerant Condensers

NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

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FOREWORD

ASHRAE Standard 64 specifies procedures, apparatus, and instrumentation by which determinations of remote mechanical draft evaporative refrigerant condenser capacity can be obtained by laboratory testing with accuracy satisfactory to be used as the basis for commercial ratings.

This 2020 revision incorporates several technical revisions, as well as changes to bring the standard into compliance with ASHRAE's mandatory language requirements. References have also been updated.

1. PURPOSE

This standard prescribes methods of laboratory testing remote mechanical-draft evaporative refrigerant condensers.

2. SCOPE

2.1 This standard provides a method of laboratory testing for obtaining performance data of remote mechanical-draft evaporative refrigerant condensers, including the following:

a. Definition of terms
b. Specification of data to be recorded
c. Calculation formulas
d. Test limits and tolerances
e. Apparatus and instrumentation with associated accuracies

2.2 This standard does not cover the following:

a. Methods of test for production or field use
b. Heat exchangers that do not fully condense refrigerant vapor, as in heat reclaim applications
c. Methods for rating condensers
d. The performance impact of external air resistance devices not provided by the manufacturer
e. Thermal performance corrections for barometric pressure, fan horsepower, and makeup water

3. DEFINITIONS

The following key terms are defined in this section. For all other terms, refer to *ASHRAE Terminology of Heating, Ventilation, Air Conditioning and Refrigeration* [1].

bubble point: liquid-vapor equilibrium point for a volatile pure liquid or for a multicomponent mixture of miscible, volatile, pure component liquids, in the absence of noncondensables, where the temperature of the mixture at a defined pressure is the minimum temperature required for a vapor bubble to form in the liquid.

condenser approach: see *temperature difference*.

condenser subcooling: difference between the bubble point corresponding to the measured refrigerant outlet pressure and the measured liquid outlet temperature.

condenser superheat: difference between the dew-point temperature and the measured refrigerant vapor temperature at the inlet.

condensing temperature: for single component and azeotropic refrigerants, the saturation temperature corresponding to the measured refrigerant pressure at the condenser inlet. For zeotropic refrigerants, the arithmetic average of the dew point and bubble point corresponding to the measured refrigerant pressure at the condenser inlet.

dew point: liquid-vapor equilibrium point for a volatile pure vapor or for a multicomponent mixture of miscible, volatile, pure component vapors, in the absence of noncondensables, where the temperature of the mixture at a defined pressure is the maximum temperature required for a liquid droplet to form in the vapor.