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Method of Testing Automatic Ice Makers

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NOTE

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FOREWORD

ASHRAE Standard 29 was first published in 1988 and was reaffirmed in 1999, 2005, and 2018 and revised in 2009 and 2015. This standard was prepared under the auspices of ASHRAE. It may be used, in whole or in part, by an association or government agency with due credit to ASHRAE. Adherence is strictly on a voluntary basis and merely in the interests of obtaining uniform guidelines throughout the industry.

This 2024 revision of the standard harmonizes language with the U.S. Department of Energy (DOE) test procedure.

1. PURPOSE

This standard prescribes a method of testing automatic ice makers by

a. Specifying procedures to be used when testing automatic ice makers
b. Establishing the types of equipment to which the provisions of the standard apply
c. Defining terms describing the equipment covered and terms related to testing
d. Specifying the type of instrumentation and test apparatus required in testing
e. Specifying a uniform method for calculation of results and
f. Specifying data and results to be recorded

2. SCOPE

This standard does not include automatic ice makers installed in household refrigerators, combination refrigerator-freezers, and household freezers.

3. DEFINITIONS

automatic ice maker: a factory-made assembly comprising a condensing unit and ice-making section operating as an integrated unit, with means for making and harvesting ice. It may also include means for storing or dispensing ice, or both. The automatic ice maker may comprise one or more sections for shipping purposes.

batch-type ice maker: an ice maker having alternate freezing and harvesting periods.

continuous-type ice maker: an ice maker that continually freezes and harvests ice at the same time.

dump water: water drainage from an ice maker to control the clarity of ice or to prevent scaling. Also referred to as "purge water."

harvest rate: the gross weight of ice harvested per unit of time, expressed in kilograms (pounds) per twenty-four hours, as calculated in Section 9.2.1.

pure ice: ice made by using water with less than 5 ppm of solids concentration.

4. CLASSIFICATION

4.1 Method of Rejecting Heat

4.1.1 Water-cooled condenser.

4.1.2 Air-cooled condenser.

4.2 Type of Ice Harvested

4.2.1 Ice in irregular shapes of chips, flakes, ribbons, or wafers.

4.2.2 Uniformly shaped ice of not over 56 g (2 oz).

5. INSTRUMENTS AND APPARATUS

5.1 Test Room

5.1.1 Ambient Temperature. With the ice maker at rest, the vertical ambient temperature gradient in any meter (foot) of vertical distance from 51 mm (2 in.) above the floor or supporting platform to a height of 2.1 m (7 ft), or to a height of 0.3 m (1 ft) above the top of the cabinet within the clearances specified in Section 6.5, whichever is greater, shall not exceed 0.91°C/m (0.5°F/ft).

5.1.2 Air Circulation. With the ice maker at rest, ambient air movement created by any source external to the unit shall not impinge upon the air inlet openings with a velocity greater than 0.25 m/s (50 fpm).