AHRI Standard 575

2017 Standard for

Method of Measuring Machinery Sound Within an Equipment Space

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IMPORTANT

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Note:

This standard supersedes ANSI/AHRI Standard 575-2008.

Foreword

This document establishes a uniform method of measuring and recording the sound levels produced by air-conditioning and refrigerating machinery installed in mechanical equipment spaces. However, it should be emphasized that this standard was developed for use where the test conditions usually cannot be controlled, e.g., ambient temperature; equipment loading; physical attributes of the space; background sound sources, etc. Since the results obtained may vary substantially, a tolerance on these results cannot be specified.

Uniform practices in making sound level measurements are necessary for effective communication between the owner, the architect, the acoustician, the consulting engineer, the contractor and the equipment manufacturer.

If ratings or specifications for sound power levels of water-cooled chillers are needed, AHRI Standard 1280 defines the proper procedure to obtain this information.

Specifications for sound levels produced by machinery may be written, both for the purpose of supplying information in order to evaluate compliance with noise exposure limits and for the purpose of providing information for adequate building design to meet the acoustical design goals of adjacent occupied spaces. In view of the geometrical and acoustical properties of large equipment, both purposes can be served by sound data expressed in terms of Sound Pressure Level measured close to the equipment.

This standard is based upon the procedures established in ANSI Standard S1.13.

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Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish for machinery installed in a mechanical equipment space: definitions; instruments; sound measurement and calculation procedures; machinery sound specifications and data presentation; system operating conditions; and conformance conditions. It is not the intent of this standard to be used for the sound rating of equipment.

1.1.1 *Intent.* This standard is intended for the guidance of the industry, including manufacturers, engineers, installers, contractors and users.

1.1.2 *Review and Amendment.* This standard is subject to review and amendment as technology advances.

Section 2. Scope

2.1 *Scope.* This standard applies to water chilling systems, pumps and similar operating machines and parts thereof, which for reasons of size or operating characteristics are more practically evaluated in situ. Furthermore, this standard provides an indication of occupational exposure.

2.2 *Exclusions*. Measurements for sound power ratings for water-cooled chillers shall be conducted according to AHRI Standard 1280.

Section 3. Definitions

All terms in this document will follow the standard industry definitions in the ASHRAE Terminology website (https://www.ashrae.org/resources--publications/free-resources/ashrae-terminology) unless otherwise defined in this section.

3.1 *A-weighted Sound Pressure Level.* The measured value obtained with a sound level meter using its A-weighting network.

3.2 *Key Measurement Points.* Locations on the measurement parallelepiped at the center of each vertical plane.

3.3 *Octave Band.* A band of sound covering a range of frequencies such that the highest is twice the lowest.

3.4 *Operating Conditions.* Those conditions specified for a particular installation. In general, they are those parameters listed in the job specification sheets for the particular equipment. Examples of parameters to be recorded are found on data forms in Appendix C.

3.5 *Representative A-weighted Sound Pressure Level (A_R).* An average A-weighted Sound Pressure Level from a measurement made with a majority of measurement points not affected by nearby reflective surfaces.

3.6 *Representative High Limit A-weighted Sound Pressure Levels (A_H).* An average A-weighted Sound Pressure Level from a measurement made with a majority of measurement points affected by reflections from nearby surfaces. The value represents an upper bound to the representative A-weighted value.

3.7 *Representative High Limit Octave Band Sound Pressure Level (OB_H).* An average Octave Band Sound Pressure Level calculated from a measurement made with more than two Key Measurement Points affected by reflections from nearby surfaces.