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ANSI/AMCA Standard 204-20

Balance Quality and Vibration Levels for Fans

An American National Standard
Approved by ANSI on March 19, 2020

Air Movement and Control Association International

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1. Purpose

This standard addresses the subjects of fan balance and vibration (BV). It is part of a series of standards and publications listed in Annex F that cover important aspects related to fan design, manufacture and use.

Other standards exist that deal with machine vibration in general. This standard only considers fans. Vibration is recognized to be an important parameter regarding fan mechanical operation. Balance quality is a precondition to satisfactory mechanical operation.

The purpose of this standard is to define appropriate fan balance quality and operating vibration levels to individuals who specify, manufacture, use and maintain fans.

2. Scope

This standard covers fans with rigid rotors generally found in commercial heating, ventilating and air conditioning; industrial process applications; mine/tunnel ventilation applications; and power generation applications. Other applications are not specifically excluded, except as follows:

- Installations that involve severe forces, impacts or extreme temperatures acting on the fan are excluded.
- Fan foundations and installation practices are beyond this standard's scope. Foundation design and fan installation are not normally the fan manufacturer's responsibility. It is fully expected that the foundation upon which the fan is mounted will provide the support and stability necessary to meet the vibration criteria of the fan as-is from the factory.
- Other factors, such as impeller cleanliness, aerodynamic conditions, background vibration, operation at rotational speeds other than those agreed upon and fan maintenance, affect fan vibration levels but are beyond this standard's scope.
- This standard is intended to cover only the fan's balance or vibration and does not consider the effect of fan vibration on personnel, equipment or processes.

Any or all portions of this standard or modifications thereof are subject to agreement between the concerned parties.

3. Normative References

The following standards contain provisions that, through specific reference in this text, constitute provisions of this standard. At the time of this standard's publication, the editions indicated were valid.

All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

ISO 21940-2:2017, Mechanical vibration — Rotor balancing — Part 2: Vocabulary
ISO 21940-11:2016, Mechanical vibration — Rotor balancing — Part 11: Procedures and tolerances for rotors with rigid behavior
ISO 21940-21:2012, Mechanical vibration — Rotor balancing — Part 21: Description and evaluation of balancing machines