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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Acoustics — Measurement of exterior noise emitted by earth-moving machinery — Dynamic test conditions

*Acoustique — Mesurage du bruit émis à l'extérieur par les engins de terrassement —
Conditions d'essai dynamiques*

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6395 was prepared jointly by Technical Committees ISO/TC 43, *Acoustics* and ISO/TC 127, *Earth-moving machinery*.

Acoustics — Measurement of exterior noise emitted by earth-moving machinery — Dynamic test conditions

0 Introduction

This International Standard is a special test code for specific types of earth-moving machinery. It is an extension of ISO 4872 which contains the general requirements for construction equipment.

A simulated dynamic rather than an actual work cycle test condition is chosen. Dynamic test conditions provide acceptable noise emission data which are repeatable and representative. Actual work cycle tests are complex and repeatability can be a problem.

Specific procedures are described in this International Standard to enable the sound power emission in dynamic test conditions to be determined in a manner which is repeatable. Attachments (bucket, dozer, etc.) for the manufacturer's production version are to be fitted since this is the configuration most likely to exist when the machine is in actual use.

This International Standard enables compliance with noise limits to be determined. It can also be used for evaluation purposes in noise reduction investigations.

An additional special test code is given in ISO 6396. This other special test code is intended to be used to determine the noise emitted by earth-moving machinery, with the machine in dynamic test conditions, measured at the operator's position in terms of the equivalent continuous A-weighted sound pressure level.

Corresponding measurements of noise emitted to the environment and noise at the operator's position under stationary test conditions are described in ISO 6393 and ISO 6394, respectively.

1 Scope

This International Standard describes a method for determining the noise emitted to the environment by earth-moving machinery in terms of the A-weighted sound power level while the machine is working under dynamic test conditions.

2 Field of application

This International Standard is applicable to the following specific crawler and wheeled types of earth-moving machinery (see also the annexes): excavators (hydraulic or rope-operated), tractors with dozer equipment, loaders, and backhoe loaders (also known as excavator-loaders) (see figures 1 to 4).

3 References

ISO 1585, *Road vehicles — Engines test code — Net power*.

ISO 4872, *Acoustics — Measurement of airborne noise emitted by construction equipment intended for outdoor use — Method for determining compliance with noise limits*.¹⁾

ISO 6165, *Earth-moving machinery — Basic types — Vocabulary*.

IEC Publication 651, *Sound level meters*.

IEC Publication 804, *Integrating-averaging sound level meters*.

4 Definitions

For the purposes of this International Standard, the definitions given in ISO 4872, together with the following, apply.

4.1 equivalent continuous A-weighted sound pressure level, $L_{pAeq,T}$: The A-weighted sound pressure level averaged on an energy basis over the whole measurement period.

4.2 A-weighted sound power level, L_{WA} : The A-weighted sound power level using equivalent continuous A-weighted sound pressure levels averaged over the measurement surface and averaged on an energy basis over the whole measurement period.

5 Instrumentation

The instrumentation shall be capable of carrying out measurements as described in 8.1. Integrating-averaging sound level meters shall meet the requirements of IEC Publication 804 for a type 1 instrument. Alternative instrumentation, including the microphone and cable, shall meet the requirements of IEC Publication 651 for a type 1 instrument.

An omnidirectional microphone shall be used for measurements so as to reduce possible directivity errors. The microphone and its associated cable shall be chosen so that the combined sensitivity does not change significantly over the temperature range encountered during the measurements.

1) Cross-references to specific clauses, sub-clauses, etc. in ISO 4872 apply to the first edition published in 1978.