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REPORT

TR 11688-1

First edition
1995-03-15

Acoustics — Recommended practice for the design of low-noise machinery and equipment —

Part 1:
Planning

Acoustique — Pratique recommandée pour la conception de machines et d'équipements à bruit réduit —

Partie 1: Planification

Reference number
ISO/TR 11688-1:1995(E)

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International Organization for Standardization
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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 Internation Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 11688-1, which is a Technical Report of type 3, was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

ISO 11688 consists of the following parts, under the general title *Acoustics — Recommended practice for the design of low-noise machinery and equipment*:

— *Part 1: Planning*
[Technical Report]

— *Part 2: Introduction into physics of low-noise design*

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Introduction

This International Technical Report provides a guideline for the design of low-noise machinery. Most of the existing International Technical Reports prepared in ISO/TC 43/SC 1 specify methods for the measurement and/or evaluation of noise. The final objective of this International Technical Report, however, will be noise control in existing machinery and noise control at the design stage.

It is important that non-acoustic engineers are engaged in noise control practice. It is of great importance for these engineers to have a basic knowledge of noise generation and propagation characteristics and to understand the basic principles of noise control measures. Hence, this International Technical Report also serves as an introduction into acoustical terms, and as a basis to the acquisition of further knowledge in noise control.

It is strongly required to support the dissemination of the design rules given here through standardisation.

Such considerations have led to the preparation of International Technical Reports in the area of noise control.

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Acoustics — Recommended practice for the design of low-noise machinery and equipment —

Part 1:
Planning

1 Scope

This International Technical Report is an aid to understanding the basic concepts of noise control in machinery and equipment.

The recommended practice presented here is intended to assist the designer at any design stage to control the noise of the final product. Methodical development of products was chosen as a basis for the structure of this document (see Clause 4).

The list of design rules given in this International Technical Report is not exhaustive. Other technical measures for reducing noise at the design stage may be used if their efficacy is identical or higher.

To solve problems going beyond the scope of this International Technical Report, the designer can refer to the bibliography in Annex D, which presents the general state of acoustic handbooks at the time of publication. Furthermore, reference is made to the numerous technical publications dealing with acoustical problems.

2 References

ISO 3744:1994, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane.*

ISO 3746:—[1)], *Acoustics — Determination of sound power levels of noise sources — Survey method employing an enveloping measurement surface over a reflecting plane.*

ISO 4871:—[1)], *Acoustics — Declaration and verification of noise emission values of machinery and equipment.*

ISO 9611:—[1)], *Acoustics — Characterization of sources of structure-borne sound with respect to the airborne sound radiation of connected structures — Measurement of velocity at the contact points of machinery when resiliently mounted.*

ISO 9614-1:1994, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurement at discrete points.*

ISO 9614-2:—[1)], *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 2: Measurement by scanning.*

1) To be published.