

This is a preview of "ISO/TR 11688-2:1998". [Click here to purchase the full version from the ANSI store.](#)

First edition
1998-09-01

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

Part 2:

Introduction to the physics of low-noise design

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

Partie 2: Introduction à la physique de la conception à bruit réduit



Reference number
ISO/TR 11688-2:1998(E)

Contents

1	Scope	1
2	References.....	1
3	Definitions	1
4	Acoustical modelling.....	1
5	Control of airborne and liquid-borne noise.....	2
5.1	Generation of fluid-dynamic noise.....	2
5.2	Noise control measures	8
6	Control of structure-borne sound.....	10
6.1	Model of sound generation.....	10
6.2	Internal sources	15
6.3	Transmission of structure-borne sound	18
6.4	Control of structure-borne sound transmission by damping	28
6.5	Radiation.....	30
7	Analysis by measurement methods	35
7.1	Purpose of the analysis.....	35
7.2	Internal sources	36
7.3	Transmission paths.....	36
7.4	Radiation.....	36
7.5	Summary of procedures for the analysis of existing machinery by measurement methods.....	37
8	Analysis by computational methods	39
8.1	Purpose of the analysis.....	39
8.2	Deterministic methods	39
8.3	Statistical methods.....	39
8.4	Applicability of computational methods	39
	Annex A Example of the estimation of airborne sound emission of a machine caused by structure-borne and airborne sound emission from a component	41
	Annex B Glossary	44
	Bibliography	46

© ISO 1998

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

This is a preview of "ISO/TR 11688-2:1998". [Click here to purchase the full version from the ANSI store.](#)

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 organisations, 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.

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 11688-2, 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*
- *Part 2: Introduction to the physics of low-noise design*

This is a preview of "ISO/TR 11688-2:1998". [Click here to purchase the full version from the ANSI store.](#)

Introduction

The objective of this part of ISO/TR 11688 is noise reduction in existing machinery and noise control at the design stage of new machinery.

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 principles of noise control measures.