# International Standard 7574/4

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

# Acoustics — Statistical methods for determining and verifying stated noise emission values of machinery and equipment — Part 4 : Methods for stated values for batches of machines

*Acoustique — Méthodes statistiques pour la détermination et le contrôle des valeurs déclarées d'émission acoustique des machines et équipements — Partie 4 : Méthodes pour valeurs déclarées de lots de machines*

**First edition — 1985-12-15**

**UDC 534.835.46 : 512.24** **Ref. No. ISO 7574/4-1985 (E)**

**Descriptors** : acoustics, machinery, noise (sound), statistical quality control, statistical analysis.



Price based on 14 pages

## 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.

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 7574/4 was prepared by Technical Committee ISO/TC 43, *Acoustics*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.



Printed in Switzerland

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# Acoustics — Statistical methods for determining and verifying stated noise emission values of machinery and equipment — Part 4: Methods for stated values for batches of machines

## 0 Introduction

A general introduction to the four-part series of ISO 7574 is given in ISO 7574/1.

For the purposes of this part of ISO 7574, the term "labelled value" stands for all kinds of stated value (e.g. information on a label, the upper noise limit set by an authority, the agreed contract value) for which the methods may be applied.

This part of ISO 7574 contains statistical sampling methods for checking the stated noise emission values for batches (lots) of machines. The labelled value for all machines in a batch is checked by sampling procedures. A reference standard deviation is required when testing the compliance of a batch of a specific family of machines. In addition, information on the type of sampling to be used (single, double or sequential) and the sample size is required. The procedures specified in this part of ISO 7574 assume that the noise emission values of a batch (lot) of machines will follow a normal distribution. The statistical parameters upon which this part of ISO 7574 is based assume that there is a 95 % probability of acceptance if no more than 6,5 % of the noise emission values in a batch exceed the labelled value. Information is included to assist the labeller in determining a labelled value based on these statistical parameters.

The methods given in this part of ISO 7574 ensure that a batch (lot) of machines labelled in accordance with the specifications for the verification procedure have a predetermined probability of acceptance.

## 1 Scope and field of application

This part of ISO 7574 provides guidelines for determining the labelled value, $L_c$, by the labeller and specifies statistical sampling procedures for verifying compliance of the noise emissions of a batch (lot) of machinery and equipment with its labelled value.

This part of ISO 7574 is intended to assist those parties responsible for drawing up specific labelling codes for specific families of machines. It is also intended to be of use to labellers who want their batches of machines to conform with verification procedures that are in accordance with the specifications given in the specific labelling codes based on clause 7.

This part of ISO 7574 does not deal with the consequences that ensue if the stated value is not confirmed as verified for a batch (lot) of machines.

## 2 References

ISO 3951, *Sampling procedures and charts for inspection by variables for percent defective.*

ISO 4871, *Acoustics — Noise labelling of machinery and equipment.*

ISO 7574/1, *Acoustics — Statistical methods for determining and verifying stated noise emission values of machinery and equipment — Part 1: General considerations and definitions.*

## 3 Definitions

For the purposes of this part of ISO 7574, the definitions given in ISO 7574/1 apply.

## 4 General

For a batch of machines, the noise emission values will cover a certain range due to the variability between the machines (relevant measure: standard deviation of production, $\sigma_p$) and due to measurement errors occurring under reproducibility conditions (relevant measure: standard deviation of reproducibility, $\sigma_R$ — see 3.17 in ISO 7574/1). The measure for the overall variability is the total standard deviation, $\sigma_t$.

The aim of labelling a batch of machines is to indicate as labelled value, $L_c$, a limit below which a specified large propor-