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Specification

Mechanical vibration in rotating machinery

Part 1. Basis for specifying evaluation standards for
rotating machines with operating speeds from
10 to 200 revolutions per second

Vibrations mécaniques des machines tournantes

Partie 1. Base pour l'élaboration des normes d'évaluation des machines tournantes ayant
une vitesse de fonctionnement comprise entre 10 et 200 tr/s

Mechanische Schwingung in rotierenden Maschinen

Teil 1. Grundlage für die Festlegung von Auswertnormalen für Rotationsmaschinen mit
einer Arbeitsgeschwindigkeit von 10 bis 200 Umdrehungen pro Sekunde

British Standards Institution

Contents

	Page		Page
Foreword	Inside front cover	Tables	
Co-operating organizations	Back cover	1. Vibration severity ranges (10 to 1000 Hz)	5
Specification		2. Vibration severity ranges and examples of their application to small machines (Class I), medium size machines (Class II), large machines (Class III) and turbo machines (Class IV)	7
0. Introduction	1	Figures	
1. Scope and field of application	1	1. Schematic arrangement of a machine soft suspension test mount	4
2. Reference	2	2. Possible measuring points in a small machine (measuring directions on bearings, supports and flanges)	5
3. Explanation of terms	2	3. Peak displacement amplitude as a function of frequency for various rms-velocity values	8
4. General guide for taking the measurements from which vibration severity is obtained	2		
5. Scale for the evaluation of vibration intensity	3		
Annexes			
A. Examples	6		
B. Calculation of peak-displacement amplitude from the rms-velocity associated with a given frequency	7		

Foreword

This revision of this British Standard, which is one of a series of standards concerned with mechanical vibration in rotating machinery, has been prepared under the authority of the Mechanical Engineering Industry Standards Committee and implements, without deviation, the corresponding International Standard ISO 2372 'Mechanical vibration of machines with operating speeds from 10 to 200 rev/s — Basis for specifying evaluation standards' including Amendment No. 1 published in 1983.

International Standard ISO 2372 is to all intents and purposes identical with the 1971 edition of this British Standard, except that the text of 4.2.2 is altered.

For the purposes of this British Standard, the text of International Standard ISO 2372 given in this publication should be modified as follows.

Terminology. The words 'British Standard' should replace the words 'International Standard' wherever they appear.

The decimal point should replace the decimal comma wherever it appears.

Cross-references. The references to another International Standard should be replaced by references to a British Standard as follows.

Reference to International Standard	Appropriate British Standard
ISO 2954 Mechanical vibration of rotating and reciprocating machinery — Requirements for instruments for measuring vibration severity*	BS 4675 Mechanical vibration in rotating machinery Part 2 : 1978 Requirements for instruments for measuring vibration severity (Identical)

It may be of assistance to mention that the authority referred to in Annex A was Mr T C Rathbone who was at the relevant time the chief engineer of the turbine and machinery division of a plant insurance company based in Philadelphia, Pa. He was the author of a number of books and articles. For example, in the November 1939 issue of Power Plant Engineering, published in Chicago, he offered a chart (amplitude plotted against frequency) to serve as a guide in estimating the comparative severity of vibration in machinery, while warning that many factors prevented the assigning of hard and fast limits to cover all classes of apparatus. His values were based on the opinions of several practical engineers and inspectors as to the smoothness or roughness of a number of turbines while on test, their opinions being correlated with simultaneous vibration records made with a vibrometer. However, that article did not specifically propose any general numerical ratio between the permissible vibrations in the horizontal and vertical axes, only quoting, as the rule rather than the exception, the example that a given vertical amplitude might create a much greater disturbance to the unit than double that amount in the lateral direction.

*ISO 2954, which was at the stage of a draft when ISO 2372 was published, has itself now been published.