
**Mechanical vibration — Measurement
of vibration on ships —**

**Part 3:
Pre-installation vibration measurement
of shipboard equipment**

*Vibrations mécaniques — Mesurage des vibrations à bord des
navires —*

*Partie 3: Mesurage des vibrations des équipements de bord avant leur
installation*



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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	1
4 Measurement requirements and procedures.....	4
4.1 General.....	4
4.2 Measurement point locations	5
4.3 Transducer orientation and mounting.....	5
4.4 Measurement frequency resolution	5
4.5 Calibration	6
4.6 Ambient vibration and its influence.....	6
4.7 Test system	6
4.8 Equipment operating conditions.....	9
5 Data evaluation	10
6 Test report	10
Annex A (informative) Typical configurations of generating sets	11
Annex B (informative) Typical configurations of test systems	13
Bibliography	23

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 20283-3 was prepared by Technical Committee ISO/TC 108, *Mechanical vibration and shock*, Subcommittee SC 2, *Measurement and evaluation of mechanical vibration and shock as applied to machines, vehicles and structures*.

ISO 20283 consists of the following parts, under the general title *Mechanical vibration — Measurement of vibration on ships*:

— *Part 3: Pre-installation vibration measurement of shipboard equipment*

The following parts are under preparation:

— *Part 2: Measurement of structural vibration on ships*

General guidelines and measurement and evaluation of ship propulsion machinery vibration are to form the subjects of future parts 1 and 4.

Introduction

Operating machinery and equipment aboard ships can create vibration and excessive structure-borne sound. As a result, the limits for sound pressure levels specified by contracting partners for spaces occupied by crew and passengers may be exceeded. Where it is anticipated that structure-borne sound from machinery can adversely affect occupied spaces, this part of ISO 20283 can be applied with the aim of selecting low-vibration machinery.

Measurement of the vibration of individual equipment units, conducted according to standardized procedures and compared with contractually agreed-on acceptance criteria, will provide the requisite information to the shipbuilder for the proper selection and installation of the equipment.

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Mechanical vibration — Measurement of vibration on ships —

Part 3: Pre-installation vibration measurement of shipboard equipment

1 Scope

This part of ISO 20283 gives guidelines, requirements and procedures for the measurement of vibration generated by types of shipboard equipment, and which can be transmitted into a ship structure as structure-borne sound, as part of the factory acceptance test (FAT) of the equipment unit. It specifies the measurements to be conducted for well-defined operating and mounting conditions of the unit, e.g. in the supplier's test rig.

This part of ISO 20283 is a framework for providing representative test results. It is applicable to shipboard equipment intended for passenger ships, merchant ships, yachts and high-speed craft.

This part of ISO 20283 is concerned with translational vibration, since rotational vibration is not considered to be a substantial contributor to structure-borne sound. However, it does not provide numerical limits for equipment vibration or transmitted structure-borne sound.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 31-7, *Quantities and units — Part 7: Acoustics*

ISO 1683, *Acoustics — Preferred reference quantities for acoustic levels*

ISO 2041, *Vibration and shock — Vocabulary*

ISO 5348, *Mechanical vibration and shock — Mechanical mounting of accelerometers*

ISO/TR 13298, *Ships and marine technology — Vocabulary of general terms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 31-7, ISO 2041, ISO/TR 13298 and the following apply.

3.1

equipment

any machine, system, subsystem or part thereof which causes vibration and is intended to be installed aboard ships

EXAMPLE 1 Main propulsion plant: diesel engine, gas turbine, main reduction gear, electric propulsion motor.