International Standard

ISO 15665

Acoustics — Acoustic insulation for pipes, valves and flanges

Acoustique — Isolation acoustique des tuyaux, clapets et brides

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Contents

Page

Foreword ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Classes of acoustic insulation **3**

5 Guidance to the reduction of noise from pipes **6**
5.1 Required insertion loss: design phase steps 6
5.1.1 Determination of sound pressure levels 6
5.1.2 Evaluation of sound pressure levels against limits 7
5.1.3 Determination of sound power levels 7
5.1.4 Contribution to noise in reverberant spaces or environmental noise 8
5.2 Required insertion loss: operating plants 8
5.3 Length of acoustic insulation 9
5.4 Implications for piping design 10
5.5 Derivation of overall noise reduction 11
5.6 Typical noise reduction values 13

6 Construction of typical acoustic insulation systems **14**
6.1 General 14
6.2 Cladding 14
6.2.1 General 14
6.2.2 Materials for the outer layer 14
6.2.3 Materials for an additional layer 15
6.2.4 Vibro-acoustic seals 15
6.3 Porous layer 16
6.4 Support of the cladding 16
6.5 Vibration isolation material at pipe supports 17

7 Installation **17**
7.1 General 17
7.2 Extent of insulation 17
7.3 End caps 18
7.4 Acoustic enclosures and jackets 18
7.5 Prevention of mechanical damage 18

8 Combined thermal and acoustic insulation **18**
8.1 General 18
8.2 Hot services 19
8.3 Cold services 19

9 Testing of acoustic insulation systems **19**
9.1 General 19
9.2 Measurement method: Field measurement 19
9.2.1 Sound power insulation, D_W 19
9.2.2 Sound pressure insulation, D_p 19
9.3 Measurement method: reverberation room 21
9.4 Test facility 21
9.4.1 Test room 21
9.4.2 Installation 21
9.4.3 Pipe dimensions 22
9.5 Sound source 23
9.6 Test specimen 23
9.7 Measurements 23
9.8 Results 24
9.9 Information to be reported 24

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Annex A (informative) **Acoustic insulation constructions that can meet the insulation class requirements** **26**

Annex B (informative) **Equations for the calculation of the minimum required insertion loss $D_{W,\min}$ of the insulation classes** **29**

Annex C (informative) **General construction of acoustic insulation** **30**

Annex D (informative) **Examples of typical construction details** **31**

Bibliography **42**

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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 International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 1, *Noise*.

This second edition cancels and replaces the first edition (ISO 15665:2003), which has been technically revised. It also incorporates the Technical Corrigendum ISO 15665:2003/Cor.1:2004.

The main changes are as follows:

— addition of Class D2 and D3 Insertion Loss from Shell DEP 31.46.00.31 to expand the purview of this document;

— addition of new pipe sound sources to incorporate pneumatic pumps and solid pellet conveyors;

— updates to Clause 6 relating to insulation construction and system material components to incorporate newer technologies and materials;

— change of previous Clause 9: "*Acoustic insulation constructions that meet the insulation class requirements*" into Annex A to update and expand the use of various, newer material system constructions. Additional emphasis placed on the requirement for insertion loss testing, as defined in this standard, for determining acoustic performance of pipework insulation systems

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Acoustics — Acoustic insulation for pipes, valves and flanges

1 Scope

This document defines the acoustic performance of four classes (Classes A, B, C and D) of pipe insulation. It also defines a standardized test method for measuring the acoustic performance of any type of material system construction, thereby allowing existing and new insulation constructions to be rated against the four classes. Furthermore, this document presents some typical types of construction that would be expected to meet these acoustic performance classes.

This document is applicable to the acoustic insulation of cylindrical steel pipes and to their piping components. It is valid for pipes up to 1 m in diameter and a minimum wall thickness of 4,2 mm for diameters below 300 mm, and 6,3 mm for diameters from 300 mm and above. It is not applicable to the acoustic insulation of rectangular ducting and vessels or machinery.

This document covers both design and installation aspects of acoustic insulation and provides guidance to assist noise control engineers in determining the required class and extent of insulation needed for a particular application. It gives typical examples of construction methods, but the examples are for information only and not meant to be prescriptive.

This document emphasises the aspects of acoustic insulation that are different from those of thermal insulation, serving to guide both the installer and the noise control engineer. Details of thermal insulation are beyond the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 354, *Acoustics — Measurement of sound absorption in a reverberation room*

ISO 3741:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Precision methods for reverberation test rooms*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
piping
cylindrical pipes and fittings such as valves, flanges, bellows and supports

Note 1 to entry: Piping is a pipe, or a system of pipes used to convey fluids (solids, liquid or gas) from one location to another. Piping fittings: Fittings are used in pipe systems to connect straight sections of pipe and adapt to different sizes or shapes.

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