



International

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Acoustics — Acoustic insulation for pipes, valves and flanges

Acoustique — Isolation acoustique des tuyaux, clapets et brides

ISO 15665

**Second edition
2023-12**



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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 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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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

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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.