
**Thermal insulating products for building
equipment and industrial installations —
Determination of dimensions, squareness
and linearity of preformed pipe insulation**

*Produits isolants thermiques pour les équipements des bâtiments et les
installations industrielles — Détermination des dimensions, de
l'équerrage et de la linéarité des coquilles isolantes préformées*

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ISO 12628:2011

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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.

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 12628 was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 1, *Test and measurement methods*.

ISO 12628 includes the original EN 13467 prepared by Technical Committee CEN/TC 88 *Thermal insulating materials and products*. However,

- Subclause 5.3, “conditioning of test specimen”, [ISO 12628:2011](https://standards.iteh.ai/catalog/standards/sist/53e59ef7-caec-47cb-9d8c-ab10c2c197a7/iso-12628-2011)
- Subclause 6.1, “test conditions”, and <https://standards.iteh.ai/catalog/standards/sist/53e59ef7-caec-47cb-9d8c-ab10c2c197a7/iso-12628-2011>
- Clause 9, “test report”

have been modified to reflect conditions for tropical countries.

This International Standard is one of a series of standards which specify test methods for determining dimensions and properties of thermal insulating materials and products. The original EN 13467 supports a series of product standards for thermal insulating materials and products which derive from the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to constructive products (Directive 89/106/EEC) through the consideration of the essential requirements.

This International Standard is one of a series of existing European Standards on test methods for products used to insulate building equipment and industrial installations which is comprised of the following group of International Standards:

ISO standard	Title	Respective EN standard
ISO 12623	<i>Thermal insulating products for building equipment and industrial installations — Determination of short-term water absorption by partial immersion of preformed pipe insulation</i>	EN 13472
ISO 12624	<i>Thermal insulation products — Determination of trace quantities of water soluble chloride, fluoride, silicate, sodium ions and pH</i>	EN 13468
ISO 12628	<i>Thermal insulating products for building equipment and industrial installations — Determination of dimensions, squareness and linearity of preformed pipe insulation</i>	EN 13467
ISO 12629	<i>Thermal insulating products for building equipment and industrial installations — Determination of water vapour transmission properties of preformed pipe insulation</i>	EN 13469

A further series of existing European Standards on test methods was adopted by ISO. This “package” of standards comprises the following group of interrelated standards:

ISO standard	Title	Respective EN standard
ISO 29465	<i>Thermal insulating products for building applications — Determination of length and width</i>	EN 822
ISO 29466	<i>Thermal insulating products for building applications — Determination of thickness</i>	EN 823
ISO 29467	<i>Thermal insulating products for building applications — Determination of squareness</i>	EN 824
ISO 29468	<i>Thermal insulating products for building applications — Determination of flatness</i>	EN 825
ISO 29469	<i>Thermal insulating products for building applications — Determination of compression behaviour</i>	EN 826
ISO 29470	<i>Thermal insulating products for building applications — Determination of the apparent density</i>	EN 1602
ISO 29471	<i>Thermal insulating products for building applications — Determination of dimensional stability under constant normal laboratory conditions (23 degrees C/50 % relative humidity)</i>	EN 1603
ISO 29472	<i>Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions</i>	EN 1604
ISO 29764	<i>Thermal insulating products for building applications — Determination of deformation under specified compressive load and temperature conditions</i>	EN 1605
ISO 29765	<i>Thermal insulating products for building applications — Determination of tensile strength perpendicular to faces</i>	EN 1607
ISO 29766	<i>Thermal insulating products for building applications — Determination of tensile strength parallel to faces</i>	EN 1608
ISO 29767	<i>Thermal insulating products for building applications — Determination of short-term water absorption by partial immersion</i>	EN 1609

ISO standard	Title	Respective EN standard
ISO 29768	<i>Thermal insulating products for building applications — Determination of linear dimensions of test specimens</i>	EN 12085
ISO 29769	<i>Thermal insulating products for building applications — Determination of behaviour under point load</i>	EN 12430
ISO 29770	<i>Thermal insulating products for building applications — Determination of thickness for floating-floor insulating products</i>	EN 12431
ISO 29771	<i>Thermal insulating materials for building applications — Determination of organic content</i>	EN 13820
ISO 29803	<i>Thermal insulation products for building applications — Determination of the resistance to impact of external thermal insulation composite systems (ETICS)</i>	EN 13497
ISO 29804	<i>Thermal insulation products for building applications — Determination of the tensile bond strength of the adhesive and of the base coat to the thermal insulation material</i>	EN 13494
ISO 29805	<i>Thermal insulation products for building applications — Determination of the mechanical properties of glass fibre meshes</i>	EN 13496

The Application of Agreement on technical cooperation between ISO and CEN (Vienna Agreement), Modes 1, 2, 4 and 5, was not approved by CEN/TC 88 and the necessity not seen by its stakeholders.

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Thermal insulating products for building equipment and industrial installations — Determination of dimensions, squareness and linearity of preformed pipe insulation

1 Scope

This International Standard specifies the equipment and procedures for determining the dimensions, squareness and linearity of preformed pipe insulation, supplied in one piece, half sections or segments. It is applicable to thermal insulating products.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply (see Figures 1 and 4).

2.1 circumference

C

circular length of the outer surface of the pipe insulation

2.2 outside diameter

D_o

linear distance between two opposite points on the outside surface of the pipe insulation measured across the centre

2.3 inside diameter

D_i

linear distance between two opposite points on the inside surface of the pipe insulation measured across the centre

2.4 length

l

linear dimension measured perpendicularly to the circumference of the pipe insulation

2.5 thickness

d

thickness of the insulation product measured perpendicularly between the outside and the inside surface of the pipe insulation

2.6 deviation from squareness

v

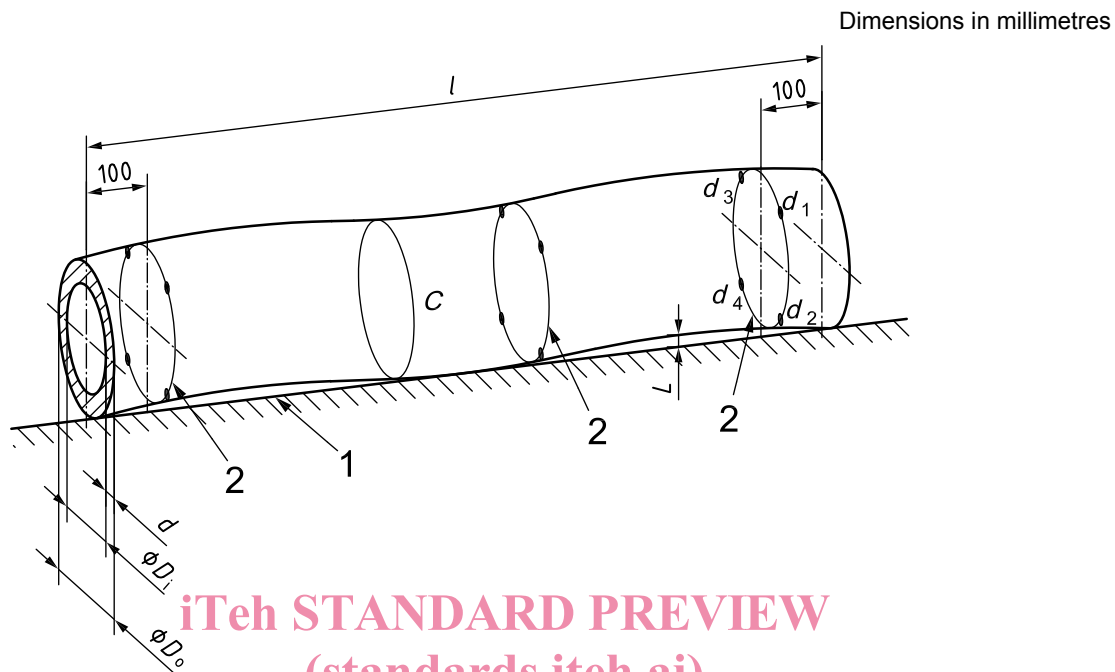
maximum distance between a product, at its end, from a line which just touches the product and which is perpendicular to its major axis

NOTE See Figure 4.

2.7 deviation from linearity

L

maximum distance between a plane reference surface on which the test specimen rests and the outside surface of the pipe insulation



Key

- 1 flat surface
- 2 locations for measurements (see 6.2.2.3)

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Figure 1 — Illustration of the definitions

3 Principle

Determination of the dimensions, squareness and linearity of a pipe insulation along or at a right angle to its major axis.

4 Apparatus

4.1 For circumference, outside and inside diameter and thickness

4.1.1 Metal tape, graduated in millimetres for measuring circumference and diameter.

Accuracy of reading:

- diameter at least 1 mm,
- circumference at least 3 mm.

4.1.2 Metal pipe, for supporting the insulation with an outside diameter which ensures no deformation of the product.

4.1.3 Rack, for supporting the metal pipe (see Figure 2).

4.1.4 Thickness gauge, capable of applying a load of minimum $(0,5 \pm 0,05)$ N to a load distributing plate, diameter 50 mm. The load shall be such that no deformation of the product occurs during measurement.

Accuracy of reading at least 0,5 mm.

4.1.5 Conical mandrel, graduated in 0,5 mm intervals (see Figure 3).

Accuracy of reading at least 0,5 mm.

4.1.6 Caliper

Accuracy of reading at least 0,1 mm.

4.2 For length

4.2.1 Metal tape, graduated in millimetres.

Accuracy of reading at least 1 mm.

4.3 For deviation from squareness

4.3.1 Metal square with limbs at least 500 mm long with a deviation from squareness of not more than $\pm 0,1$ mm when measured at 500 mm from the corners (see Figure 4).

4.3.2 Metal tape, graduated in millimetres.

Accuracy of reading at least 1 mm.

4.4 For deviation from linearity

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4.4.1 Flat surface, on which the test specimen rests.

4.4.2 Metal tape, graduated in millimetres.

Accuracy of reading at least 1 mm.

4.4.3 Thickness gauge, (wedge shape), graduated in 0,5 mm (see Figure 5).

Accuracy of reading at least 0,5 mm.

NOTE For all measured dimensions test equipment which provides the same result with at least the same accuracy can be used.