ILNAS

Institut luxembourgeois de la normalisation
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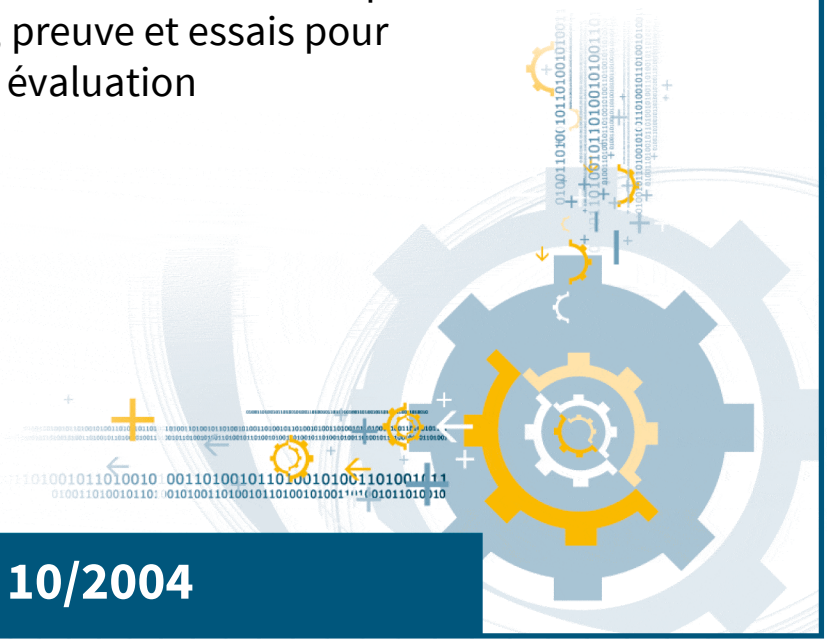
ILNAS-EN 14024:2004

Metal profiles with thermal barrier - Mechanical performance - Requirements, proof and tests for assessment

Metallprofile mit thermischer Trennung - Mechanisches Leistungsverhalten - Anforderungen, Nachweis und Prüfungen für die Beurteilung

Profilés métalliques à rupture de pont thermique - Performances mécaniques - Exigences, preuve et essais pour évaluation



10/2004

National Foreword

This European Standard EN 14024:2004 was adopted as Luxembourgish Standard ILNAS-EN 14024:2004.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14024

October 2004

ICS 91.060.10; 91.060.50

English version

Metal profiles with thermal barrier - Mechanical performance - Requirements, proof and tests for assessment

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This European Standard was approved by CEN on 29 July 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Ref. No. EN 14024:2004: E

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Foreword

This document (EN 14024:2004) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

This text includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies requirements for assessment of the mechanical strength of metal profiles incorporating a thermal barrier. It also specifies the tests to determine the characteristic values of mechanical properties of the thermal barrier profile and to assess the suitability of the thermal barrier material used.

This document applies to thermal barrier profiles designed mainly for windows, doors, window walls and curtain walls. It does not apply to thermal barriers made only of metal profiles connected with metal pins or screws.

Thermal barrier profiles are used in various fields of applications and demand a differing assessment of their mechanical performance depending on their intended use. This document takes this into account by two fields of application: one for windows, doors and related components and one for profiles in façades.

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.

EN ISO 4600*, Plastics – Determination of environmental stress cracking (ESC) – Ball or pin impression method (ISO 4600:1992).*

3 Terms, definitions and symbols

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

3.1
thermal barrier profile
profile composed of two or more metal sections connected by at least one thermally insulating (non-metallic) part

NOTE 1 The thermal barrier contributes to load transmission.

NOTE 2 The thermal barrier can be continuous or in parts.

3.2 Use categories

3.2.1
category W
thermal barrier profiles mainly designed for windows, doors and secondary constituent parts of curtain walls

NOTE Thermal barrier profiles designed for windows and doors do not usually require proof by calculation for mechanical resistance.

3.2.2
category CW
thermal barrier profiles mainly designed for the constituent parts of curtain walls with spans greater than 2,25 m

NOTE Constituent parts of curtain walls usually need proof by calculation relating to mechanical resistance and deflection.

3.2.3
temperature categories
two temperature categories, defined and to be chosen according to the intended use

Temperature category	Low test temperature LT	High test temperature HT
TC 1	(-10 ± 2) °C	(70 ± 3) °C
TC 2	(-20 ± 2) °C	(80 ± 3) °C

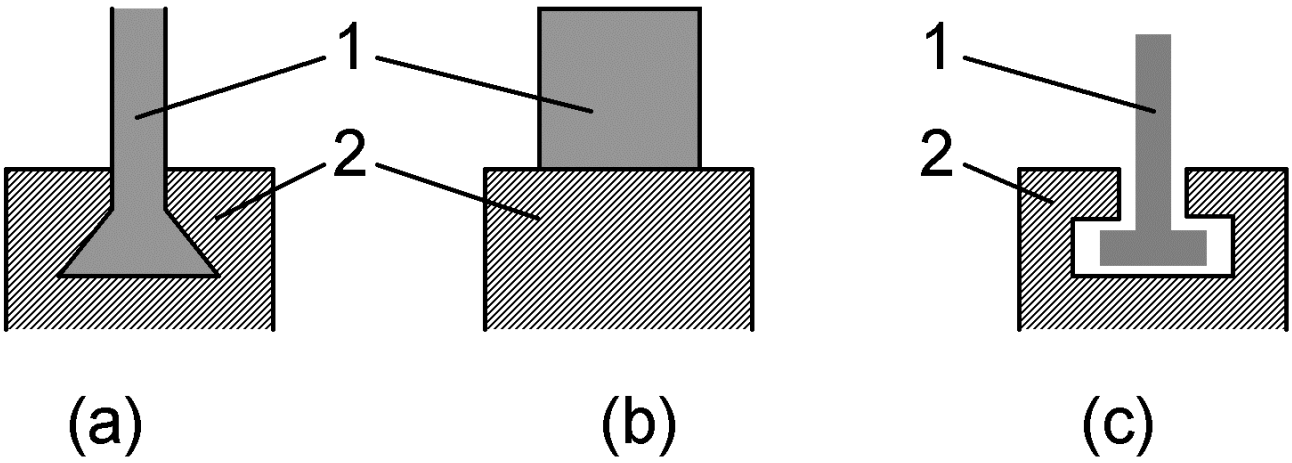
NOTE Temperature category TC 2 includes temperature category TC 1.

3.3 Mechanical design systems

3.3.1
type A system
system which is designed to transfer shear and in which shear failure will not negatively affect the transverse tensile strength

3.3.2
type B system
system which is designed to transfer shear and in which shear failure will negatively affect the transverse tensile strength

3.3.3
type O system
system which is designed to transfer no shear to the thermal barrier or profile which has an insufficient shear strength



a) Type A system b) Type B system c) Type O system

Key
1 Thermal barrier
2 Metal

Figure 1 — Schematic diagram of mechanical design systems