# DIN EN ISO 10077-1

ICS 91.060.50; 91.120.10

Supersedes
DIN EN ISO 10077-1:2018-01

# Thermal performance of windows, doors and shutters – Calculation of thermal transmittance – Part 1: General (ISO 10077-1:2017, Corrected version 2020-02); English version EN ISO 10077-1:2017, English translation of DIN EN ISO 10077-1:2020-10

Wärmetechnisches Verhalten von Fenstern, Türen und Abschlüssen – Berechnung des Wärmedurchgangskoeffizienten – Teil 1: Allgemeines (ISO 10077-1:2017, korrigierte Fassung 2020-02); Englische Fassung EN ISO 10077-1:2017, Englische Übersetzung von DIN EN ISO 10077-1:2020-10

Performance thermique des fenêtres, portes et fermetures – Calcul du coefficient de transmission thermique – Partie 1: Généralités (ISO 10077-1:2017, Version corrigée 2020-02); Version anglaise EN ISO 10077-1:2017, Traduction anglaise de DIN EN ISO 10077-1:2020-10

Document comprises 53 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.



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*A comma is used as the decimal marker.*

## National foreword

This document (EN ISO 10077-1:2017) has been prepared by Technical Committee CEN/TC 89 “Thermal performance of buildings and building components” (Secretariat: SIS, Sweden) in collaboration with Technical Committee ISO/TC 163 “Thermal performance and energy use in the built environment”.

The responsible German body involved in its preparation was *DIN-Normenausschuss Bauwesen* (DIN Standards Committee Building and Civil Engineering), Working Committee NA 005-56-97 AA “Transparent components (national mirror committee for CEN/TC 89/WG 7, ISO/TC 163/SC 1/WG 17, ISO/TC 163/SC 2/WG 9 (for transparent components))”.

This standard has been prepared under the EPBD mandate M/480.

DIN EN ISO 10077-1 is an International Standard and CEN ISO/TR 52022-2 is the accompanying Technical Report to this standard containing further informative content for assessing the energy performance of a building.

In Germany, the Directive on the energy performance of buildings (2010/31/EU) of the European Parliament and the European Council is primarily implemented by national energy conservation legislation. National energy conservation legislation refers to dated national and European Standards and national prestandards that have been specified for implementation in Germany.

In Germany, the application of this standard in connection with national energy conservation legislation is defined by provisions in this legislation.

Provisions of German energy conservation law cannot be systematically fully and identically implemented with the set of standards under the EPBD mandate M/480 and the therein referenced International and European Standards. When applying the standards of the mandate, accordance with German energy conservation law cannot be achieved, whether in terms of the procedure, the result, or assessment of the result.

Currently, the set of standards of the EPBD mandate M/480 is not applicable for the purposes of German energy conservation law, even if references to national regulations in the respective national annexes are taken into consideration.

EN ISO 10077-1:2017 contains errors that were corrected when this document was prepared. The corrections made have been marked by and explained in national footnotes.

The DIN documents corresponding to the international documents referred to in this document are as follows:

| | |
|---|---|
| ISO 6946 | DIN EN ISO 6946 |
| ISO 7345 | DIN EN ISO 7345 |
| ISO 10077-2 | DIN EN ISO 10077-2 |
| ISO 10211 | DIN EN ISO 10211 |
| ISO 10456 | DIN EN ISO 10456 |
| ISO 12567-2 | DIN EN ISO 12567-2 |
| ISO 52000-1:2017 | DIN EN ISO 52000-1:2018-01 |
| ISO/TR 52022-2 | DIN CEN ISO/TR 52022-2 |

**Amendments**

This standard differs from DIN EN ISO 10077-1:2010-05 as follows:

a) in Clause 6 (previous edition), the boundary condition "determined with the glazing replaced with a material of thermal conductivity not exceeding 0,04 W/($m^2$·K)" has been deleted, because the rules have been defined in EN 12412-2;

b) in Clause 6 (previous edition), the measurement according to EN 12412-2 for the determination of $\Psi_g$ and/or $\Psi_p$ has been deleted; it is not within the scope of EN 12412-2 to determine $\Psi$ values;

c) in Clause 6 (previous edition), the second paragraph has been deleted; it is not necessary to give further possibilities; the determination of the input data has been unambiguously defined;

d) in subclause 5.2.2 (previous edition), the formula has been deleted; the determination of $U_g$ is according to ISO 10292;

e) Formulae (1) and (2) have been extended to take into account glazing bars;

f) tabulated values have been added for the linear thermal transmittance of glazing bars;

g) the status of Annex C (previous edition) has been changed to normative; some values have been revised to give the values to two significant figures;

h) Table C.2 (previous edition) has been transferred to ISO/TR 52022-2:2017;

i) Annex E (previous edition) has been transferred to the main body of the document;

j) Annexes G and H (previous edition) have been transferred to ISO/TR 52022-2:2017.

Compared with DIN EN ISO 10077-1:2018-01, the following corrections have been made:

a) in the Introduction, the reference to Annex D has been changed to a reference to Annex F;

b) in the Introduction, the reference to Annex E has been changed to a reference to Annex G;

c) in subclause 6.3.2.2, the reference to Annex G has been changed to a reference to Annex H;

d) in the headings of Tables H.2, H.3 and H.4, the value 0,8 has been changed to 0,80;

e) in Table H.3, in line 29 after the heading, in the third column, the value 0,18 has been changed to 0,81;

f) the standard has been editorially revised.

**Previous editions**

DIN 4108: 1952xx-07, 1960-05, 1969-08
DIN 4108-4: 1981-08, 1985-12, 1991-11
DIN V 4108-4: 1998-03, 1998-10
DIN EN ISO 10077-1: 2000-11, 2006-12, 2010-05, 2018-01

# National Annex NA
(informative)

# Bibliography

DIN EN ISO 6946, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

DIN EN ISO 7345, *Thermal insulation — Physical quantities and definitions*

DIN EN ISO 10077-2, *Thermal performance of windows, doors and shutters — Calculation of thermal transmittance — Part 2: Numerical method for frames*

DIN EN ISO 10211, *Thermal bridges in building construction — Heat flows and surface temperatures — Detailed calculations*

DIN EN ISO 10456, *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

DIN EN ISO 12567-2, *Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 2: Roof windows and other projecting windows*

DIN EN ISO 52000-1:2018-01, *Energy performance of buildings — Overarching EPB assessment — Part 1: General framework and procedures*

DIN CEN ISO/TR 52022-2, *Energy performance of buildings — Thermal, solar and daylight properties of building components and elements — Part 2: Explanation and justification*

EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

# Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1: General (ISO 10077-1:2017, Corrected version 2020-02)

Performance thermique des fenêtres, portes et fermetures - Calcul du coefficient de transmission thermique - Partie 1: Généralités (ISO 10077-1:2017, Version corrigée 2020-02)

Wärmetechnisches Verhalten von Fenstern, Türen und Abschlüssen - Berechnung des Wärmedurchgangskoeffizienten - Teil 1: Allgemeines (ISO 10077-1:2017, korrigierte Fassung 2020-02)

This European Standard was approved by CEN on 27 February 2017.

This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 18 March 2020.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**



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