BRITISH STANDARD

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12365-1:2003

Building hardware — Gasket and weatherstripping for doors, windows, shutters and curtain walling —

Part 1: Performance requirements and classification

The European Standard EN 12365-1:2003 has the status of a British Standard

ICS 91.060.50; 91.190

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National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/538, Doors, windows, shutters, hardware and curtain walling, to Subcommittee B/538/4, Building hardware, which has the responsibility to:

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Baubeschläge - Dichtungen und Dichtungenprofile für Fenster, Türen und andere Abschlüsse sowie vorgehängte Fassaden - Teil 1: Anforderungen und Klassifizierung

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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 12365-1:2003) 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of an identical text or by endorsement, at the latest by March 2004, and conflicting national standards shall be withdrawn at the latest by March 2004.

EN 12365, *Building hardware* — Gaskets and weatherstripping, consists of the following Parts:

— *Part 1 : Performance requirements and classification.*

— *Part 2 : Linear compression force test method.*

— *Part 3 : Deflection recovery test method.*

— *Part 4 : Recovery after accelerated ageing test method.*

The performance requirements and classification in this Part of EN 12365 relate to test methods given in Parts 2, 3 and 4.

This Standard is one of a series of European Standards for building hardware.

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

1 Scope

This European Standard specifies the performance requirements of gaskets and weatherstripping for the control of the passage of air, water, noise and energy between openable and fixed parts of doors, windows, shutters and curtain walling.

The general performance requirements in this Standard are applicable to gaskets and weatherstripping of all materials.

This European Standard is not applicable to sealants, mastics, putties, or any such materials which are extruded in liquid or viscous form into the final place of use.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of this publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 12365-2, *Building hardware — Gaskets and weatherstripping for doors, windows, shutters and curtain walling — Part 2: Linear compression force test methods.*

EN 12365-3, *Building hardware — Gaskets and weatherstripping for doors, windows, shutters and curtain walling — Part 3: Deflection recovery test method.*

EN 12365-4, *Building hardware — Gaskets and weatherstripping for doors, windows, shutters and curtain walling — Part 4: Recovery after accelerated ageing test method.*

prEN 12519:2003, *Windows and doors - Terminology*

3 Terms and definitions

For the purposes of this European Standard the terms and definitions given in prEN 12519:2003 and the following apply.

3.1
deflection recovery
ability of a gasket or weatherstripping to recover its free height after being compressed or deflected

3.2
free height
height of the gasket or weatherstripping at zero load

3.3
gasket
packing material firmly held between contact surfaces on two components whose joint is to be sealed

3.4
linear compression force
force needed to deflect a specimen to its maximum working range, at a temperature of 23 °C 2 °C

3.5
maximum working temperature
condition below which the gasket or weatherstripping is considered to be capable of performing

3.6
minimum width
a) the minimum width of a gasket is the sum of the gaps between the infilling and the frame or bead, each side;

b) the minimum width of weatherstripping is the distance between a point related to the mounting surface and a point of the contact surface.

3.7
product
building product such as a window or a door

3.8
sample
complete batch of test material (profile), as supplied by the manufacturer, and from which the test pieces shall be cut

3.9
specimen
one or more test pieces mounted ready to be placed in the test apparatus, so as to be tested together as one unit

3.10
test pieces
lengths of material cut at random from various places within the sample to provide test specimens

3.11
user
person who is supplied with the gaskets or weatherstripping for use in the product

3.12
weatherstripping
strip, often of flexible material, attached to a door, window or shutter, to cover the space between the edge or bottom of the door, window or shutter and the frame or threshold

3.13
working range
distance through which a gasket or weatherstripping can be compressed or deflected when used in an assembly

4 Classification

4.1 Coding system

For the purposes of this European Standard, gaskets and weatherstripping for use on doors, windows, shutters and curtain walling shall be classified according to the following six digit coding system (see Table 1) described in 4.2 to 4.7.

Table 1

Digit	1	2	3	4	5	6
Category	Category of use	Working range	Linear compression force	Working temperature range	Deflection recovery	Recovery after ageing

4.2 Category of use (first digit)

Two categories are identified:

- type G: gasket;
- type W: weatherstripping.

4.3 Working range (second digit)

Nine grades are identified:

- grade 1: ≤ 1 mm;
- grade 2: > 1 mm to ≤ 2 mm;
- grade 3: > 2 mm to ≤ 4 mm;
- grade 4: > 4 mm to ≤ 6 mm;
- grade 5: > 6 mm to ≤ 8 mm;
- grade 6: > 8 mm to ≤ 10 mm;
- grade 7: > 10 mm to ≤ 15 mm;
- grade 8: > 15 mm to ≤ 30 mm;
- grade 9: > 30 mm.

4.4 Linear compression force (third digit)

Nine grades are identified:

- grade 1: ≤ 10 N/m;
- grade 2: > 10 N/m to ≤ 20 N/m;
- grade 3: > 20 N/m to ≤ 50 N/m;
- grade 4: > 50 N/m to ≤ 100 N/m;
- grade 5: > 100 N/m to ≤ 200 N/m;
- grade 6: > 200 N/m to ≤ 500 N/m;
- grade 7: > 500 N/m to ≤ 700 N/m;

¾ grade 8: > 700 N/m to ≤ 1 000 N/m;

¾ grade 9: > 1 000 N/m.

4.5 Working temperature range (fourth digit)

Six grades are identified:

¾ grade 1: 0 °C to +45 °C;

¾ grade 2: -10 °C to +55 °C;

¾ grade 3: -20 °C to +85 °C;

¾ grade 4: -25 °C to +100 °C;

¾ grade 5: -40 °C to +70 °C;

¾ grade 6: 0 °C to +200 °C.

4.6 Deflection recovery (fifth digit)

Eight grades are identified:

¾ grade 0: no performance requirement;

¾ grade 1: > 30 % to 40 %;

¾ grade 2: > 40 % to 50 %;

¾ grade 3: > 50 % to 60 %;

¾ grade 4: > 60 % to 70 %;

¾ grade 5: > 70 % to 80 %;

¾ grade 6: > 80 % to 90 %;

¾ grade 7: > 90 %.

4.7 Recovery after ageing (sixth digit)

Eight grades are identified:

¾ grade 1: no performance requirement;

¾ grade 1: > 30 % to 40 %;

¾ grade 2: > 40 % to 50 %;

¾ grade 3: > 50 % to 60 %;

¾ grade 4: > 60 % to 70 %;

¾ grade 5: > 70 % to 80 %;

¾ grade 6: > 80 % to 90 %;

¾ grade 7: > 90 %.

4.8 Examples of classification

EXAMPLE 1

W	**3**	**3**	**4**	**5**	**4**

This denotes weatherstripping with a working range of between 2 mm to 4 mm, for use in applications where closing forces do not exceed 50 N/m and the temperature can range from -40 °C to +70 °C. Under these operating conditions, this weatherstripping will have a 70 % minimum deflection recovery rate and a 60 % minimum recovery rate after ageing.

A typical application for example 1 would be on an exterior window. For a product with a working range of 3,5 mm, the long-term working range will be: (3,5 mm x $\frac{60}{100}$) ≥ 2,1 mm.

EXAMPLE 2

W	**4**	**2**	**1**	**5**	**5**

This denotes weatherstripping with a working range of between 4 mm and 6 mm for use in applications where closing forces do not exceed 20 N/m in an environment where the temperature range is 0 °C to +45 °C. Under these operating conditions, this weatherstripping will have a 70% minimum deflection recovery rate and a 70% minimum recovery rate after ageing.

A typical application for example 2 would be on an interior door. For a product with a working range of 5 mm, the long-term working range will be: (5 mm x $\frac{70}{100}$) ≥ 3,5 mm.

5 General requirements

5.1 This Part of this European Standard specifies the requirements to which all gaskets and weatherstrippings shall comply in order to control the passage of air, water, noise and energy, between openable parts, fixed parts, infilling and frames.

5.2 Gaskets and weatherstripping shall complement the tolerances of the construction materials and the products in which they are to be used, e.g. timber, PVC-U, metal, etc, and the manufacturing process and any variations in gaps caused by loads on the product.

5.3 The materials shall be physically and chemically compatible with the contact surfaces of the product and be completely suited to the climatic and environmental conditions of use. These matters shall be agreed between the supplier and user.

5.4 Gaskets and weatherstripping shall sustain the mechanical stress induced in normal use, as considered in the design, e.g. tilt, turn or slide. Consideration should also be given to the frequency of use in such an application. These matters shall be agreed between the supplier and user.

5.5 Gaskets and weatherstripping shall not impair the designed operation of the products, e.g. weatherstripping shall not produce excessive operating forces and gaskets shall not allow infillings to vibrate. During operation they shall reduce the effects of slamming or other undue strains. These matters shall be agreed between the supplier and user.

6 Methods of test

6.1 Compression test

The method of test to determine the force required to compress or deflect gaskets and weatherstripping by a predetermined amount, shall comply with the requirements of EN 12365-2.

6.2 Deflection recovery test

The method of test to determine the percentage recovery of gaskets and weatherstripping, after being compressed or deflected through the working range to the minimum width, at the maximum temperature range, shall comply with the requirements of EN 12365-3.

6.3 Recovery after ageing test

The method of test to determine the long-term material performance for gaskets and weatherstripping, at maximum working temperature, shall comply with the requirements of EN 12365-4.

7 Labelling and packaging

The product and/or its literature etc (where indicated) shall be marked with the following:

a) Manufacturer's name or trademark, or other means of positive identification;

b) Classification according to clause 4 of this standard;

c) Number and date of this European Standard;

d) The month and year of manufacture e.g. 1202 (= December 2002).

The goods shall be packed in such a way that they are protected from any permanent distortion which is likely to affect their performance.

Bibliography

prEN 12488, *Glass in buildings — Glazing requirements - Assembly rules .*

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