

BS EN 12503-1:2013



BSI Standards Publication

Sports mats

Part 1: Gymnastic mats, safety requirements

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National foreword

This British Standard is the UK implementation of EN 12503-1:2013. It supersedes BS EN 12503-1:2001 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee SW/136/22, Sports, Playground and other Recreational Equipment - Gymnasium and Playing Field Equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Anforderungen

This European Standard was approved by CEN on 21 December 2012.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 12503-1:2013) has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational facilities and equipment", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12503-1:2001.

This standard EN 12503 "Sports mats" consists of:

- Part 1: *Gymnastic mats, safety requirements;*
- Part 2: *Pole vault and high jump mats, safety requirement;*
- Part 3: *Judo mats, safety requirements;*
- Part 4: *Determination of shock absorption;*
- Part 5: *Determination of the base friction;*
- Part 6: *Determination of the top friction;*
- Part 7: *Determination of static stiffness.*

In relation to EN 12503-1:2001, the following main amendments have been made:

- a) Peak deceleration for type 3 in Table 2 has been modified;
- b) Annex B (informative) has been introduced.

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

1 Scope

This European Standard specifies safety requirements (including performance requirements) for 8 types of gymnastic mats used in school, training and competition, see Clause 4.

The performance and safety values cover shock absorption, anti-slip characteristics of the base and top friction characteristics of the surface.

NOTE For the specific requirements of international official competitions, see appropriate international regulations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12503-4, *Sports mats — Part 4: Determination of shock absorption*

EN 12503-5, *Sports mats — Part 5: Determination of the base friction*

EN 12503-6, *Sports mats — Part 6: Determination of the top friction*

3 Terms and definitions

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

3.1 shock absorption
ability of the mat to reduce impact forces on the athlete, expressed as a maximum deceleration under defined test conditions

3.2 deflection
ability of the mat to deform to an impact whilst maintaining the athletes stability, expressed as maximum deflection under defined test conditions

3.3 resilience
ability of the mat to return energy after an impact, expressed as resilience in percent under defined test conditions

3.4 surface
upper side of the mat on which the athlete moves

3.5 base
under side of the mat designed to be in contact with the floor during use

4 Classification

Gymnastic mats shall be classified by type according to their intended typical use as shown in Table 1

Table 1 — Types

Type	Typical use
1	Mat for floor exercise without jumping (foundation skills)
2	Mat for floor exercise with jumping
3	Mat for floor exercise with jumping and landing
4	Mat for simple dismount from apparatus with controlled landing
5	Mat for dismount
6	Mat for difficult dismount
7	Fall mattress for simple exercises
8	Fall mattress
NOTE For types 9, 10 and 11 see EN 12503-2, for type 12 see EN 12503-3.	

5 Safety requirements

5.1 Shock absorption

When tested according to EN 12503-4, the gymnastic mat shall comply with the values of Table 2 according to the appropriate type.

Table 2 — Shock absorption

Type	Peak deceleration <i>g</i> (1 <i>g</i> = 9,81 m/s ²)	Deflection mm	Resilience %
1	≤ 80	not needed	not needed
2	≤ 65	≤ 35	20 to 60
3	≤ 40	≤ 50	≤ 55
4	≤ 40	≤ 110	≤ 50
5	≤ 25	≤ 110	≤ 30
6	≤ 14	≤ 105	≤ 15
7	≤ 35	≤ 185	≤ 25
8	≤ 20	≤ 250	≤ 25

5.2 Base friction characteristics

When tested in accordance with EN 12503-5, the gymnastic mat shall comply with the values given in Table 3.

Table 3 — Base friction characteristics

Type	Frictional value
1	No requirement
2	$\geq 1,5$
3	$\geq 1,5$
4	$\geq 4,5$
5	$\geq 4,5$
6	$\geq 4,5$
7	$\geq 4,5$
8	$\geq 4,5$

5.3 Top friction characteristics

When tested in accordance with EN 12503-6, the gymnastic mat shall comply with the values of Table 4.

Table 4 — Top friction characteristics

Type	Frictional value
1	$\geq 0,8$
2	$\geq 0,8$
3	$\geq 0,8$
4	$\geq 0,8$
5	$\geq 0,8$
6	$\geq 0,8$
7	not needed
8	not needed

6 Marking

Mat shall be marked legibly and indelibly with the following information:

- the number of this European Standard EN 12503-1 and the type number;
- the name and trademark of the manufacturer, retailer or importer and the year of manufacture;
- which is the top surface of the mat (if not clearly recognisable).

Annex A
(informative)

Flame retardancy

Sports matting for use in the United Kingdom shall satisfy certain minimum levels of flame retardancy. These levels and the required test methodology are detailed in BS 1892-3:2003.

Annex B
(informative)

End user guidance

The attention of users is drawn to the need to regularly inspect mats to ensure their performance has not deteriorated after prolonged use or inappropriate handling and storage.

Bibliography

- [1] BS 1892-3:2003, *Gymnasium equipment. Sports mats. Specification for fire safety requirements for mats, mattresses and landing areas*

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BSI Group Headquarters

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