Singapore Standards Council

SS 513 : Part 2 : 2013
ISO 20344 : 2011
(ICS 13.340.50)

SINGAPORE STANDARD

Specification for personal protective equipment – Footwear

– Part 2 : Test methods for footwear

[ISO title : Personal protective equipment – Test methods for footwear]

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This Singapore Standard was approved by the General Engineering and Safety Standards Committee on behalf of the Standards Council of Singapore on 18 November 2013.

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The General Engineering and Safety Standards Committee, appointed by the Standards Council, consists of the following members:

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The Technical Committee on Personal Safety and Health, appointed by the General Engineering and Safety Standards Committee and responsible for the preparation of this standard, consists of representatives from the following organisations:

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The organisations in which the experts of the Working Group are involved are:

Association of Singapore Marine Industries
King's Shoe Manufacturing Pte Ltd
Ministry of Manpower
Nanyang Technological University
PDS International Pte Ltd
Singapore Contractors Association Limited
ST Aerospace Ltd
TŰV SŰD PSB Pte Ltd

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National Foreword

This Singapore Standard was prepared by a Working Group appointed by the Technical Committee on Personal Safety and Health which is under the purview of the General Engineering and Safety Standards Committee.

SS 513 comprises the following two parts under the general title, "Specification for personal protective equipment – Safety footwear":

- Part 1 : Safety footwear
- Part 2 : Test methods for footwear

Part 1 specifies basic and additional (optional) requirements for safety footwear used for general purposes and Part 2 specifies methods for testing footwear designed as personal protective equipment.

This part of SS 513 is a revision of SS 513 : Part 2 : 2005. SS 513 : Part 2 : 2005 was an identical adoption of ISO 20344 : 2004 "Personal protective equipment – Test methods for footwear". ISO 20344 underwent a revision in 2011. A review was therefore initiated for SS 513 : Part 2 and this resulted in the identical adoption of ISO 20344 : 2011 as Part 2 of SS 513.

Attention is drawn to the following:

1. Where the references "ISO 20345" and "ISO 20344" appear, they should be interpreted as "SS 513 : Part 1" and "SS 513 : Part 2" respectively.

2. The reference to International Standards shall be replaced by the following Singapore Standards:

International Standard	Corresponding Singapore Standard
ISO 20345 : 2011	SS 513 : Part 1 : 2013 – Personal protective equipment – Footwear – Safety footwear
ISO 20344 : 2011	SS 513 : Part 2 : 2013 – Personal protective equipment – Footwear – Test methods for footwear

3. The comma has been used throughout as a decimal marker in ISO 20345, whereas in Singapore Standards it is a practice to use a full-point on the baseline as the decimal marker.

4. Information on acquiring certain products is given for the convenience of users of this standard and does not constitute an endorsement by SPRING Singapore of the product name(s). Equivalent products may be used if they can be shown to lead to the same results.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*

2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR.*

3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards id 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 standardisation.

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 20344 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 161, *Foot and leg protectors*, in collaboration with ISO Technical Committee ISO/TC 94, *Personal safety – Protective clothing and equipment*, Subcommittee SC 3, *Foot protection*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20344:2004), which has been technically revised. It also incorporates the Technical Corrigendum ISO 20344:2004/Cor.1:2005 and the Amendment ISO 20344:2004/Amd.1:2007.

The main differences between this edition and the 2004 edition are:

— Annex A, inclusion of a new procedure for plasticine calibration;

— Annex C, inclusion of a new table for footwear sizing;

— 4.1, Table 1, clarification of the method for sampling;

— 5.1, clarification on testing of ergonomic features;

— 5.4 and 5.5, inclusion of a reference to EN 12568:2010;

— 5.8.3, different test methods for anti-penetration insoles;

— 5.15.2, inclusion of a new test method for water resistance;

— 6.4.2 and 6.5.2, inclusion of test methods (due to the withdrawal of ISO 2023);

— 6.11, replacement of the method for determination of chromium VI by a reference to ISO 17075;

— withdrawal of 5.11, “Determination of the electrical insulation”.

Specification for personal protective equipment – Footwear : Part 2 : Test methods for footwear

1 Scope

This International Standard specifies methods for testing footwear designed as personal protective equipment.

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.

ISO 34-1:2010	Rubber, vulcanised or thermoplastic – Determination of tear strength – Part 1: Trouser, angle and crescent test pieces
ISO 868	Plastic and ebonite – Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)
ISO 1817:2011	Rubber, vulcanised – Determination of the effect of liquids
ISO 3290-1	Rolling bearings – Balls – Dimensions and tolerances
ISO 3376	Leather – Physical and mechanical tests – Determination of tensile strength and percentage extension
ISO 3377-2	Leather – Physical and mechanical tests – Determination of tear load – Part 2: Double edge tear
ISO 4045	Leather – Determination of pH
ISO 4643:1992	Moulded plastic footwear – Lined or unlined poly (vinyl chloride) boots for general industrial use – Specification
ISO 4649:2010	Rubber, vulcanised or thermoplastic – Determination of abrasion resistance using a rotating cylindrical drum device
ISO 4674-1:2003	Rubber- or plastic-coated fabrics – Determination of tear resistance – Part 1: Constant rate of tear methods
ISO 5423:1992	Moulded plastic footwear – Lined or unlined polyurethane boots for general industrial use – Specification
ISO 13287	Personal protective equipment – Footwear – Test method for slip resistance
ISO 17075	Leather – Chemical analysis – Determination of chromium VI
ISO 20345:2011	Personal protective equipment – Safety footwear
ISO 20347	Personal protective equipment – Occupational footwear
ISO 23529:2010	Rubber – General procedures for preparing and conditioning test pieces for physical test methods
EN 388:2003	Protective gloves against mechanical risks
EN 12568:2010	Foot and leg protectors – Requirements and test methods for toecaps and penetration-resistant inserts