SS 322 : 2015 (2021)
(ICS 21.060.70; 29.120.20)

SINGAPORE STANDARD

Specification for earthing and bonding clamps

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Singapore Standards Council

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Contents

National Foreword

This Singapore Standard was prepared by the Working Group on Plugs, Socket Outlets and Switches appointed by the Technical Committee for Electrical and Electronic Products under the direction of the Electrical and Electronic Standards Committee.

Earthing and bonding are essential to the safety of the wiring system as laid down in Singapore Standard, SS 638. The quality of the clamps used for these purposes is an important consideration.

This standard is a revision of SS 322 : 1987(2008). It is a modified adoption of the BS 951 : 2009 'Electrical earthing. Clamps for earthing and bonding. Specification', and is implemented with the permission of BSI Standards Limited.

The deviations are as follows:

Clauses/Subclauses	Modification
Foreword	*Replaced with National Foreword.*
Clause 3	*Added the definitions, 'bonding', 'protective conductor' and 'earthing conductor'.* *Explanation: The additional terms found in BS 951: 2009 are defined in SS 322 : 2015 for clarity.*
Clause 5.3 - NOTE	*Deleted the note, 'The terminal may be of a screwed or screwless construction'.* *Explanation: Terminals of a screwless construction are not permitted for use in Singapore.*
Clause 5.4 - Table 2	*Modified Table 2, 'Maximum torques for screws'.* *Explanation: The torque values listed in Table 2 are widely recognised and accepted by the industry in Singapore.*
Clause 5.5	*Modified specification of 2.5 mm to 5 mm.* *Explanation: The specification is widely recognised and accepted by the industry in Singapore.*
Clause 6	*Added local requirement 'Materials shall have a minimum tensile strength of 380 N/mm^2.* *Explanation: The minimum tensile strength of 380 N/mm^2 is widely recognised and accepted by the industry in Singapore.*
Annex C – Table C.1	*Modified values for the torque.* *Explanation: The torque values listed in Table C.1 is widely recognised and accepted by the industry in Singapore.*
Annex D	*Added Annex D as informative reference.* *Explanation: Annex D lists examples of clamps currently being used in Singapore and aims to provide guidance.*

Where appropriate, the words ‘British Standard’ have been replaced by ‘Singapore Standard’.

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. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as “mature standards”. Mature standards will not be subject to further review unless there are requests to review such standards.*

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 and the Singapore Standards Council 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. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*

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

Specification for earthing and bonding clamps

1 Scope

This Singapore Standard specifies performance and mechanical requirements for clamps used to provide mechanically and electrically sound means of earthing and/or bonding, which are primarily intended for use in electrical installations for the connection of:

a) earthing conductors, having a cross-sectional area in the range 2.5 mm^2 to 70 mm^2, to earth electrode rods or other means of earthing;

b) bonding conductors to metal tubes of circular cross-section that have circumferences of not less than 18.8 mm (i.e. diameters of not less than 6 mm).

NOTE 1 – These clamps are also suitable for electrically bonding other conductive parts, where at least one is a tube of circular cross-section. Such clamps are not intended for connection to the armour or sheath of a cable.

NOTE 2 – Clamps specified in this standard are intended to be used singly.

NOTE 3 – There is no correlation between the size of the conductor which the clamp conductor can accommodate and the size of tube to which it is intended to be fitted.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS EN 1057, *Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating applications*

BS EN 13601, *Copper and copper alloys – Copper rod, bar and wire for general electrical purposes*