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SOUTH AFRICAN NATIONAL STANDARD

Plug and socket-outlet systems for household and similar purposes for use in South Africa

Part 8: Two pole and earth, 32A 250V a.c. system.

WARNING
This document references other documents normatively.

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Table of changes

Change No.	Date	Scope

Foreword

This South African standard was prepared by National Committee SABS/TC 067/SC 03, *Electricity distribution systems and components – Electrical accessories*, in accordance with procedures of the South African Bureau of Standards, in compliance with annex 3 of the WTO/TBT agreement.

This document was approved for publication in xxxxx 2020.

This document is referenced in the *Compulsory specification for plugs, socket-outlets, and socket-outlet adaptors*, as published by Government Notice No. R. 1075 (Government Gazette 33763) of 19 November 2010.

SANS 164 consists of the following parts, under the general title *Plug and socket-outlet systems for household and similar purposes for use in South Africa:*

Part 0: General requirements.

Part 1: Two-pole and earth, 16 A 250 V a.c. system.

Part 2: Two-pole and earth and 2 pin (Class II), 16 A 250 V a.c. system.

Part 2-1: Two-pole and earth, 16 A 250 V a.c. partially dedicated system.

Part 2-2: Two-pole and earth, 16 A 250 V a.c. fully dedicated system.

Part 3: Two-pole and earth, 6 A 250 V a.c. system.

Part 4: Two-pole and earth, 16 A 250 V a.c. dedicated system.

Part 5: Two-pole (Class II), 2.5 A 250 V a.c. non rewireable plug.

Part 6: Two-pole (Class II), 16 A 250 V a.c. system.

Compliance with this document cannot confer immunity from legal obligations.

Contents

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Plug and socket-outlet systems for household and similar purposes for use in South Africa.

Part 8:
Two pole and earth, 32 A 250 V a.c. system

1 Scope

This part of SANS 164 covers the rating and dimensions of the 32 A 250 V a.c. plug and socket-outlet system, for use as an appliance connector, intended for the installation of stoves or similar fixed appliances, for household and similar purposes, in South Africa.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of SANS 164. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this part of SANS 164 are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from Standards South Africa.

EC 60417-DB, *Graphical symbols for use on equipment.* Available from World Wide Web: <http://domino.iec.ch/IEC60417>.

SANS164-0 *Plug and socket-outlet systems for household and similar purposes for use in South Africa – Part 0: General and safety requirements.*

SANS60884-1 *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements.*

3 Definitions

For the purposes of this part of SANS 164, the definitions given in SANS 164-0 apply.
With the addition of the following:

3.101
Appliance connector
A connector is a plug and socket system consisting of a socket-outlet that can accept a supply cord, for the connection of appliances such as stoves and similar appliances to a fixed installation.

3.102
Appliance socket-outlet
A socket-outlet wired to the fixed installation used for the connection of stoves and similar appliances.

3.103
Appliance supply cord

A cord or short extension lead connected to the stove or similar appliance, which is fitted with a non-rewireable plug, making the installation suitable to possible safe maintenance of the stove or similar appliance.

4 Requirements

4.1 The requirements of SANS 164-0 apply.

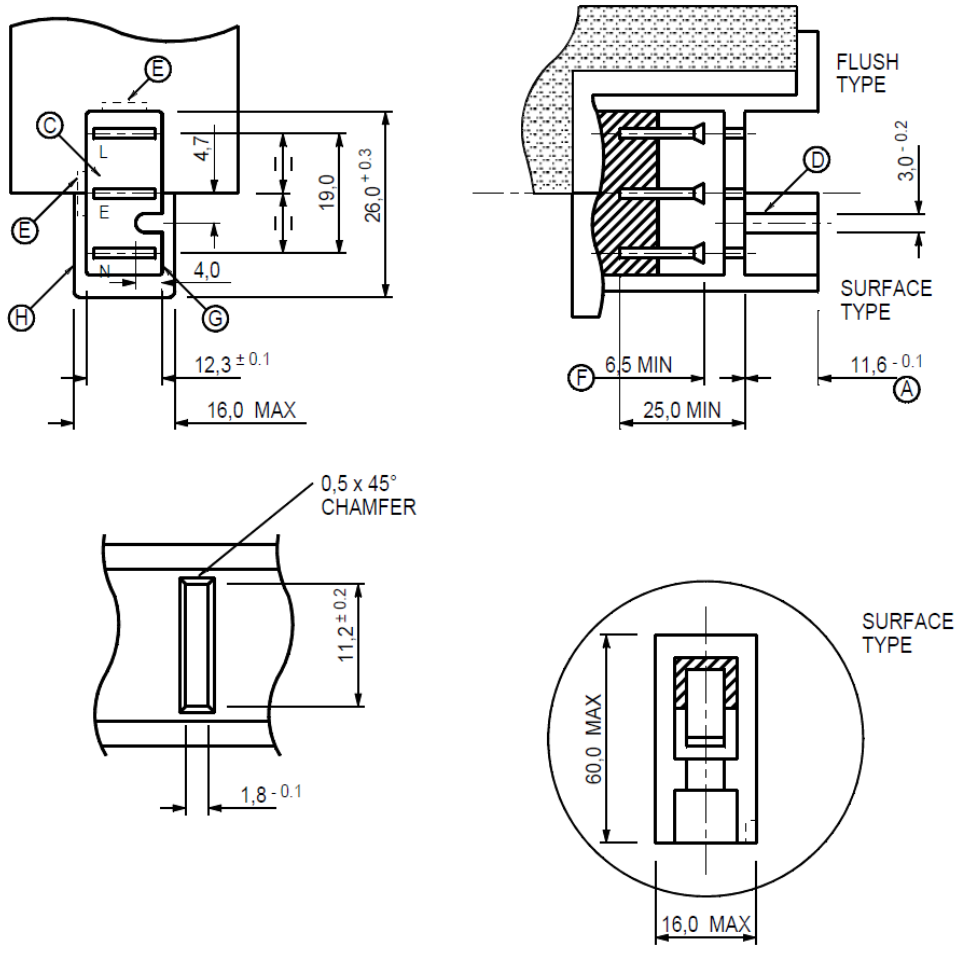
4.2 Socket-outlets and non-rewireable plugs shall be rated at 32 A and 250 V a.c.

4.3 Plugs and socket-outlets shall comply with the dimensions given on the appropriate standard sheets 7-1 and 7-2. Use the gauges given in annexes A to F for checking the dimensions.

4.4 The plug retention mechanism shall withstand a pull of 100N without dislodging the plug from the socket-outlet. Disengagement shall be carried out by use of a tool.

STANDARD SHEET 8-1: 32 A 250 V Two-pole socket-outlet with earthing-contact

Dimensions in millimetres



NOTE 1 The drawings show the flush and surface type installation socket-outlet.

NOTE 2 The sketches are not intended to govern design, except as regards the dimensions shown.

NOTE 3 The socket-outlets may be used in various arrangements, such as multiple types.

Explanation of circled references on standard sheet 8-1.

A. A combination of a rim and a recess is provided to ensure protection from the live portion of a contact pin and the risk of contact to it during plug insertion. This is checked by means of Gauges shown in Annexes A and B.

B. Provision is made for the inclusion of wiring terminals, in compliance with SANS 60884-1 Clause 12 and able to accommodate 2 x 4.0 mm^2 flexible copper conductors.

C. Earth, Live and Neutral terminals shall be marked at the wiring terminals.

D. Recessed section for a mating locating protrusion is inserted to accommodate the correct entry of the mating plug.

E. Provision is made for a plug retaining clip design.

F. The correct distance between the engagement face and the point of first contact with current-carrying socket contacts is checked by means of gauges shown in Annex B.

The gauges shown in Annex C shall be used to check that:

a) When inserting a plug with earthing contact, the earth connection is made before the current-carrying pins of the plug become live.

b) When withdrawing the plug, the current-carrying pins shall separate from socket contact assemblies before the earth connection is broken.

G. Internal radius 0.5 max.

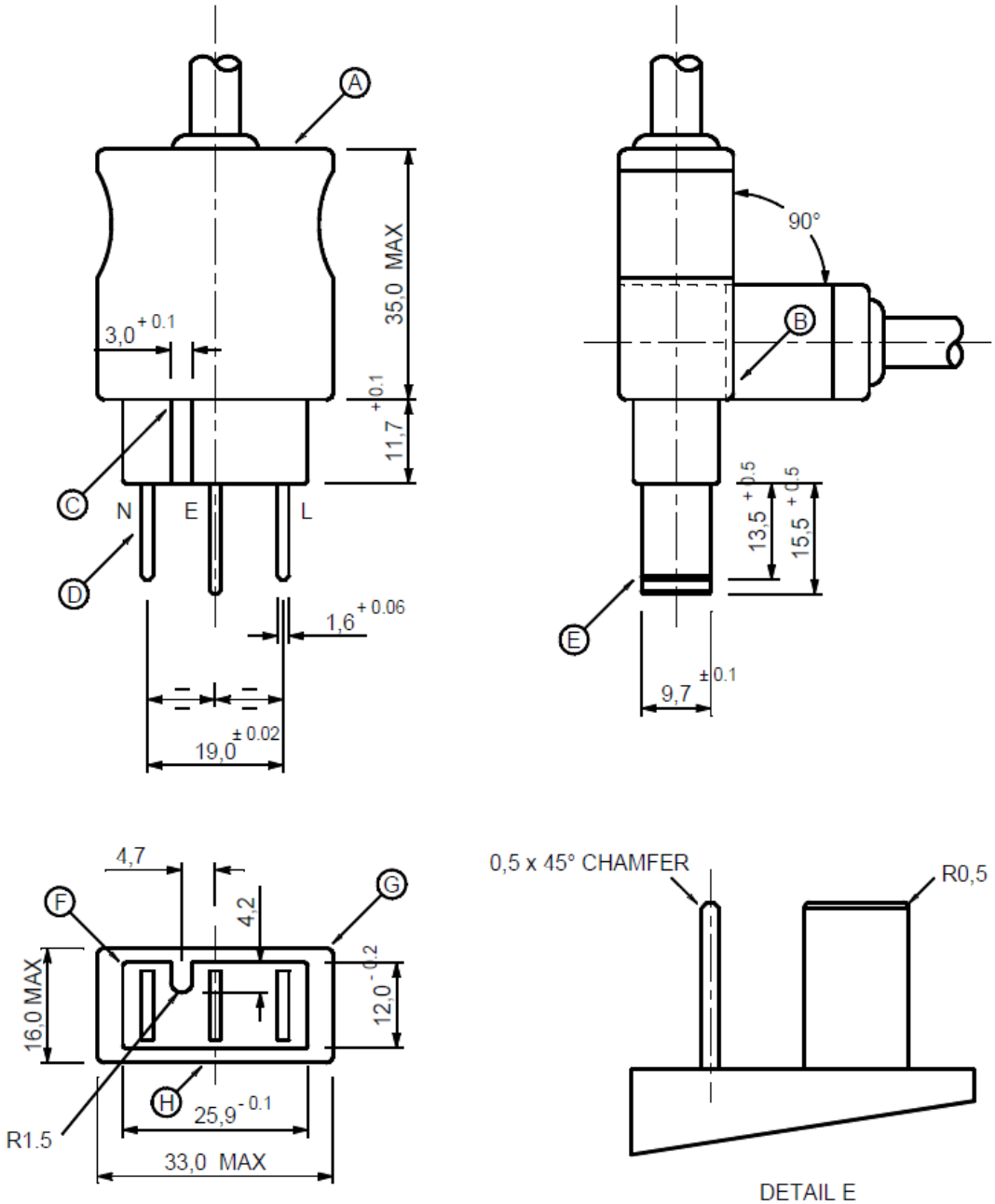
H. External radius or chamfer.

I. Shutters are optional.

J. Provision for flush mounting – not specified.

STANDARD SHEET 8-2: 32 A 250 V Two-pole plug with earthing pin.

Dimensions in millimetres



NOTE The sketches are not intended to govern design, except as regards the dimension shown.

Explanation of circled references on standard sheet 8-2.

A. Provision for a flexible cord of 4 mm^2 3-core and a maximum length of 2.0 m.

B. Provision is made for a plug retaining clip design compatible with that of the socket-outlet.

C. Slot for mating location to accommodate the correct entry of the mating plug into the socket-outlet.

D. Marking of the E, L & N terminals is not necessary for the non-rewireable plug.

E. Plug pins shall be smooth and burr free.

F. Internal radii shall be 0.2 mm max.

G. External radius or chamfer.

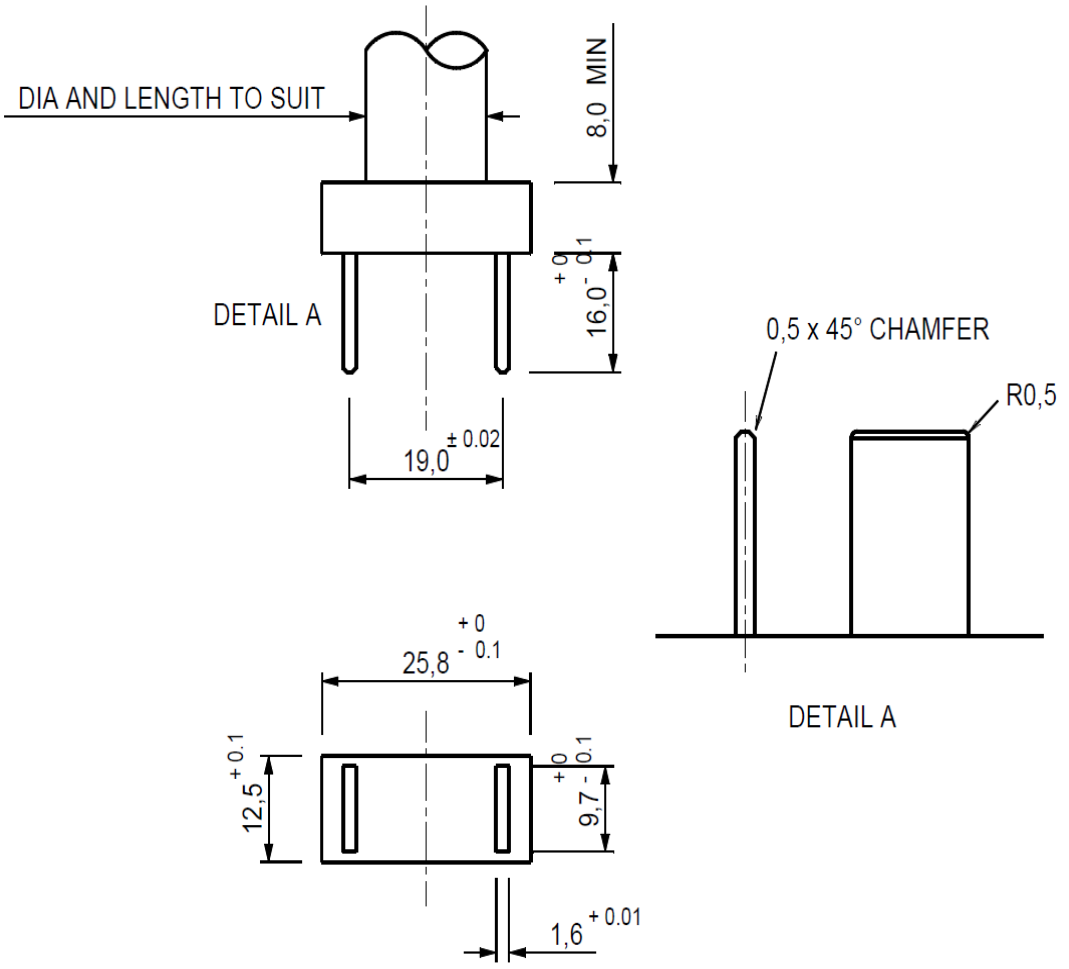
H. Provision is made for a plug retaining clip design to match that of the socket outlet.

I. External radii 1.0 mm max.

Annex A
(normative)

Gauge for checking impossibility of single pole insertion. ITEM 1 and 2 Standard sheet 8-1.

Dimensions in millimetres



The test is made with the engagement face of the socket-outlet horizontal and the shutters (if any) open. The gauge is applied under its own weight in every possible position.

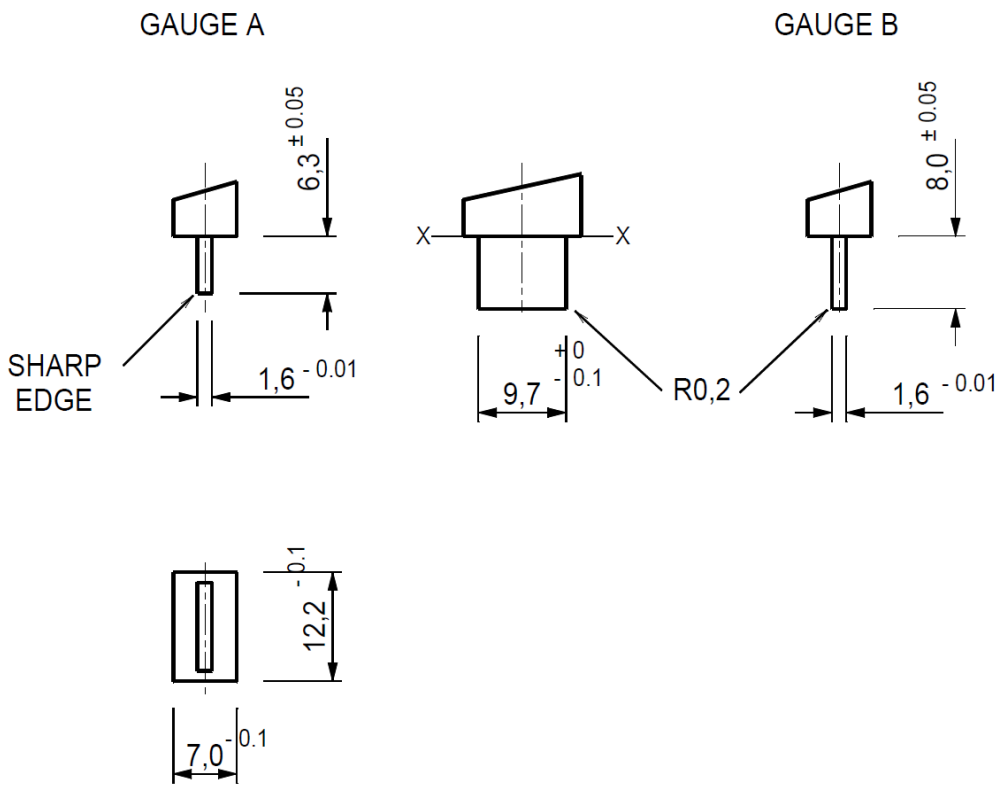
It shall not be possible to touch the socket-contact assembly with one-gauge pin only; an electrical indicator with a voltage not less than 40 V and not more than 50 V is used to show contact.

The total mass of the gauge shall be 306 g ± 5 g and it is made with hard corrosion-resistant metal providing sufficient rigidity (e.g., stainless steel).

Annex B
(normative)

Gauge to verify the distances according to ITEM D of Standard sheet 8-2

Dimensions in millimetres



During the tests using these gauges, shutters (if any) shall be held open.

The metallic parts of gauges A and B are made of hard corrosion-resistant metal (e.g., stainless steel).

An electrical indicator with a voltage not less than 40 V and not more than 50 V is used to show contact.

The gauge A shall be introduced through the entry holes of the socket-contact assembly in every possible position until the plane XX is fully in contact with the engagement face. The indicator shall not light.

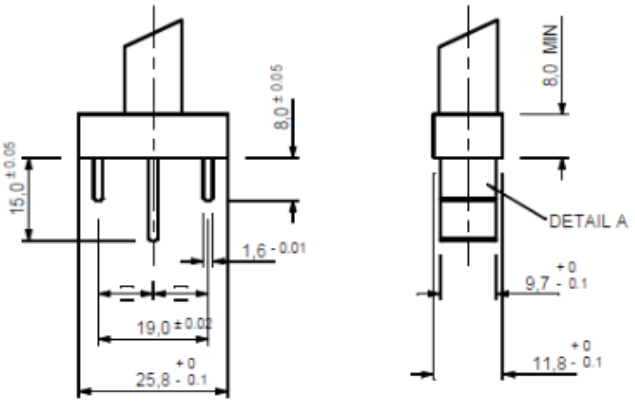
and

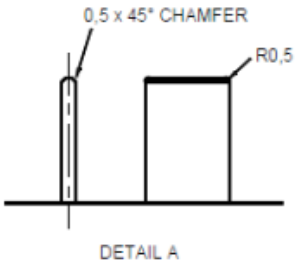
When the pin of gauge B is completely inserted and in full contact with the engagement face: the indicator shall light.

Annex C
(normative)

Gauges verify the distances according to ITEM E of Standard sheet 8-1

Dimensions in millimetres

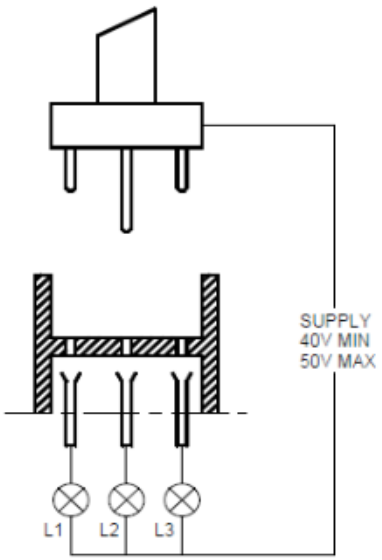




The gauge when inserted into the socket-outlet, without undue force but at any possible angle, shall cause lamp L2 to light up before lamps L1 and L3.

The gauge, when withdrawn, shall cause the lamp L1 and L3 to extinguish before lamp L2.

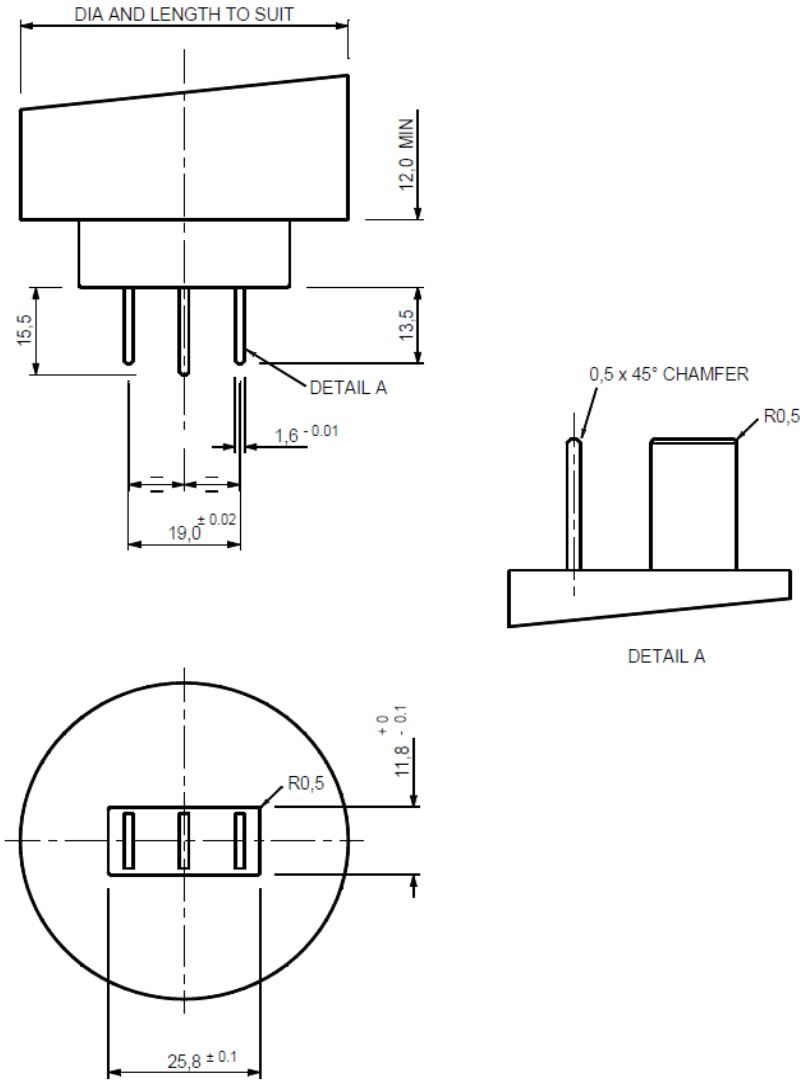
The gauge shall be made of hard corrosion-resistant metal (e.g., stainless steel).



Annex D
(normative)

Gauge for checking the maximum withdrawal force (See Clause 22 of SANS 60884-1)

Dimensions in millimetres



The gauge shall be made of hard corrosion-resistant metal (e.g., stainless steel).
The total mass of the gauge shall be 80N (8.15kg).

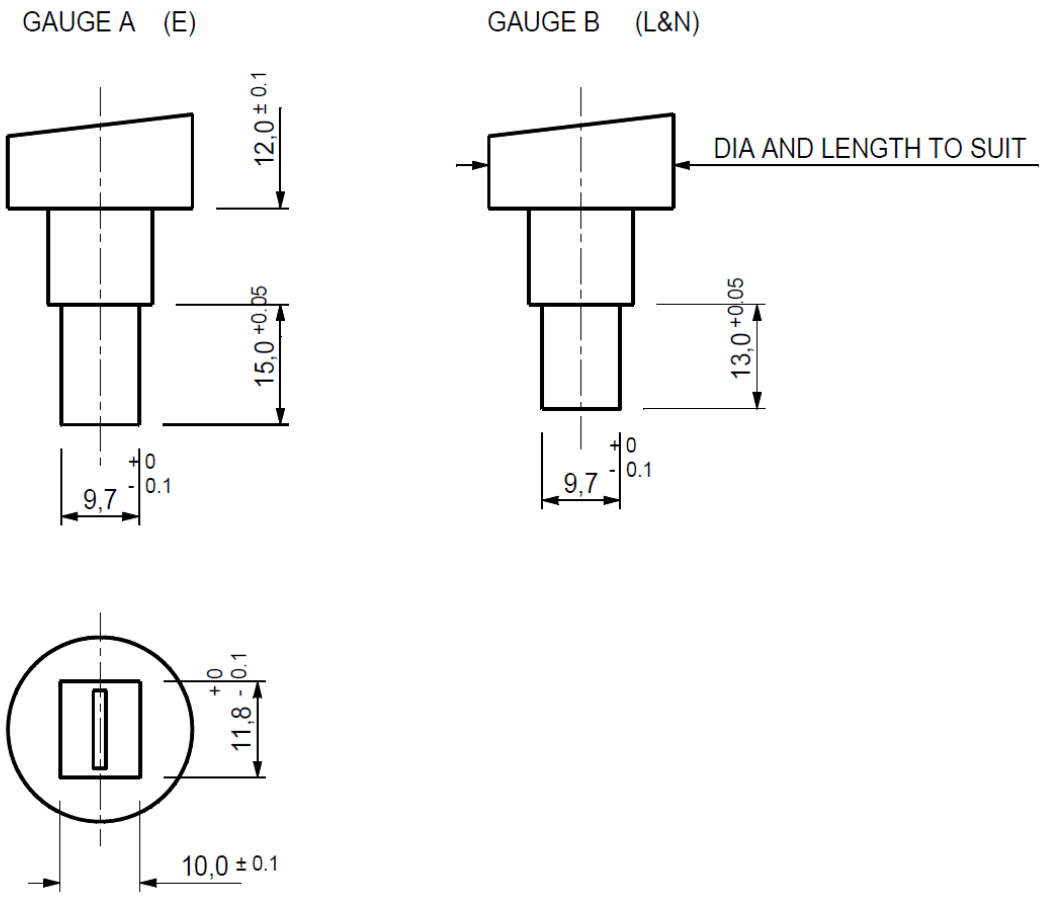
With the socket outlet contacts in a vertical position:

The socket outlet, when fully engaged with the gauge**,** shall not lift the gauge.

Annex E
(normative)

Gauge for checking the minimum withdrawal force (See Clause 22 of SANS 60884-1)

Dimensions in millimetres



The gauge shall be made of hard corrosion-resistant metal (e.g., stainless steel.
The total mass of the gauge shall be 3N (306g).

With the socket outlet contacts in a vertical position:

Gauge A shall not fall out when inserted in the Earth contact entry and

Gauge B shall not fall out when inserted in the L and N contact entries, respectively.

Bibliography

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