

SOUTH AFRICAN NATIONAL STANDARD

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

Part 3: Conventional system, 6 A 250 V a.c.

**WARNING — Can only be used
in conjunction with
SANS 164-0.**

SANS 164-3:2013
Edition 1.2

Table of changes

Change No.	Date	Scope
Amdt 1	2007	Amended to include maximum lengths of sleeves on plug pins, to clarify a drawing, and to change dimensions on the gauges in annexes B and C.
Amdt 2	2013	Amended to move a referenced standard from the bibliography to the normative references clause and delete the bibliography, to restrict the dimensions in standard sheets 3, 3- and the annex on the gauges, and to add requirements for the multi-pin gauge.

Foreword

This South African standard was approved by National Committee SABS SC 67C, *Electricity distribution systems and components – Electrical accessories*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

This document was published in March 2013.

This document supersedes SANS 164-3:2007 (edition 1.1).

A vertical line in the margin shows where the text has been technically modified by amendment No. 2.

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 and safety requirements.

Part 1: Conventional system, 16 A 250 V a.c.

Part 2: IEC system, 16 A 250 V a.c.

Part 3: Conventional system, 6 A 250 V a.c.

Part 4: Dedicated system, 16 A 250 V a.c.

Part 5: Two-pole, non-rewirable plugs, 2,5 A 250 V a.c., with cord, for connection of class II equipment.

Part 6: Two-pole systems, 16 A 250 V a.c., for connection of class II equipment.

This document, by reference in SANS 164-0, 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.

Annexes A, B, C, D, E and F form an integral part of this document.

Contents

	Page
Foreword	
1 Scope	3
2 Normative references	3
3 Definitions	3
4 Requirements	3
Annex A (normative) Gauge for the distance from the engagement face to the current-carrying contact tubes of socket-outlets	8
Annex B (normative) Gauge for the distance from the engagement face to the point of first contact with the current-carrying contacts of socket-outlets (no contact gauge)	9
Annex C (normative) Gauge for the distance from the engagement face to the point of first contact with the current-carrying contacts of socket-outlets (contact gauge)	10
Annex D (normative) Gauges for proving that it is not possible to make a connection between a pin of a plug and a current-carrying contact of a socket-outlet while any other current-carrying pin is accessible	11
Annex E (normative) Gauge for proving that, during insertion of a plug, the earth pin makes a connection before either of the current-carrying pins, and that, during plug withdrawal, both current-carrying pins break connection before the earth pin	14
Annex F (normative) "GO" gauges for plugs and socket-outlets	16

Amdt 2

SANS 164-3:2013

Edition 1.2

This page is intentionally left blank

www.china-gauges.com

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

Part 3:

Conventional system, 6 A 250 V a.c.

1 Scope

This part of SANS 164 covers the ratings and dimensions of the conventional 6 A 250 V a.c. plug and socket-outlet system and socket-outlet adaptors for household and similar purposes, for use 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 edition of the standards indicated below. Information on currently valid national and international standards can be obtained from the SABS Standards Division.

SANS 164-0, *Plug and socket-outlet systems for household and similar purposes for use in South Africa – Part 0: General and safety requirements.*

SANS 60884-1/IEC 60884-1, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements.* **Amdt 2**

3 Definitions

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

4 Requirements

4.1 The requirements of SANS 164-0 apply.

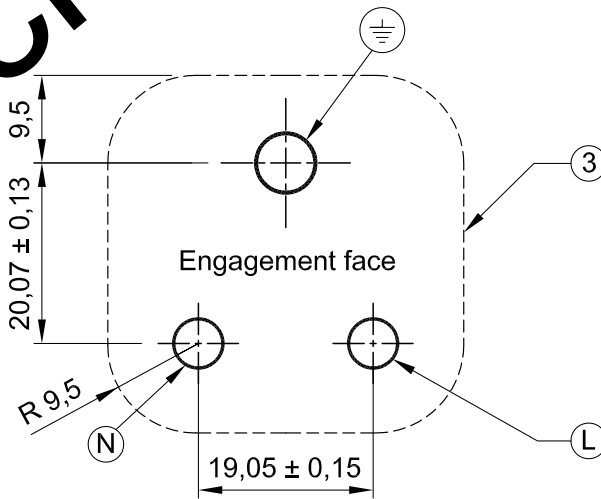
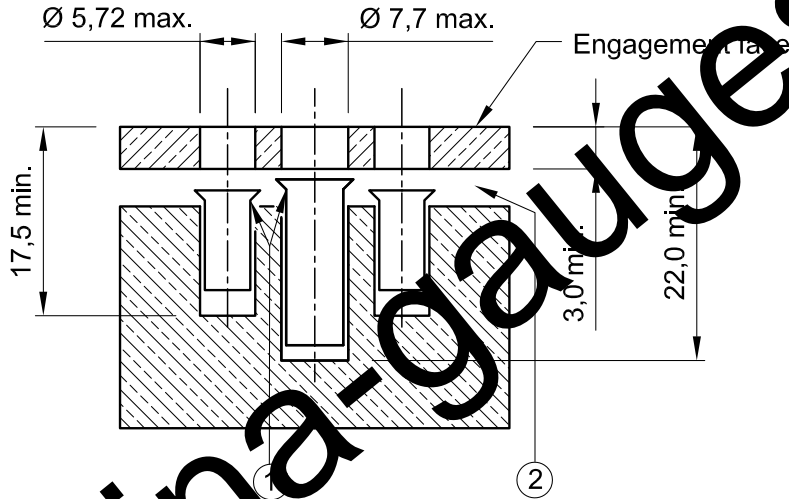
4.2 Socket-outlets, socket-outlet adaptors and rewirable plugs shall be rated at 6 A and 250 V a.c.

4.3 Plugs and socket-outlets shall comply with the dimensions given on the appropriate of standard sheets 3-1 or 3-2.

Use the gauges given in annexes A to F for checking the dimensions.

Standard sheet 3-1 — 6 A Two-pole and earthing-contact
socket-outlets

Dimensions in millimetre



Drq.12869a

Explanation of reference numbers on standard sheet 3-1

1 Chamfer to aid entry of plug pins.

2 Space for shutters.

3 The restricted encroachment area is to allow unimpeded engagement of plugs and adaptors.

NOTE Single pin insertion tests are covered in annex D.

Amdt 1; amdt 2

Amdt 2

Amdt 2

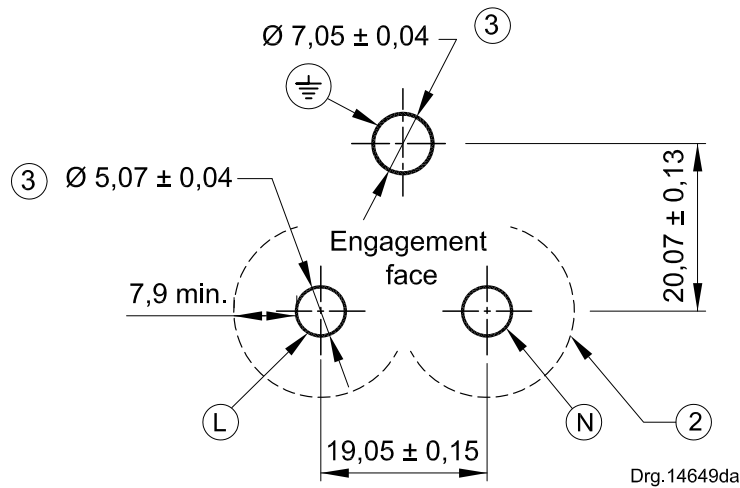
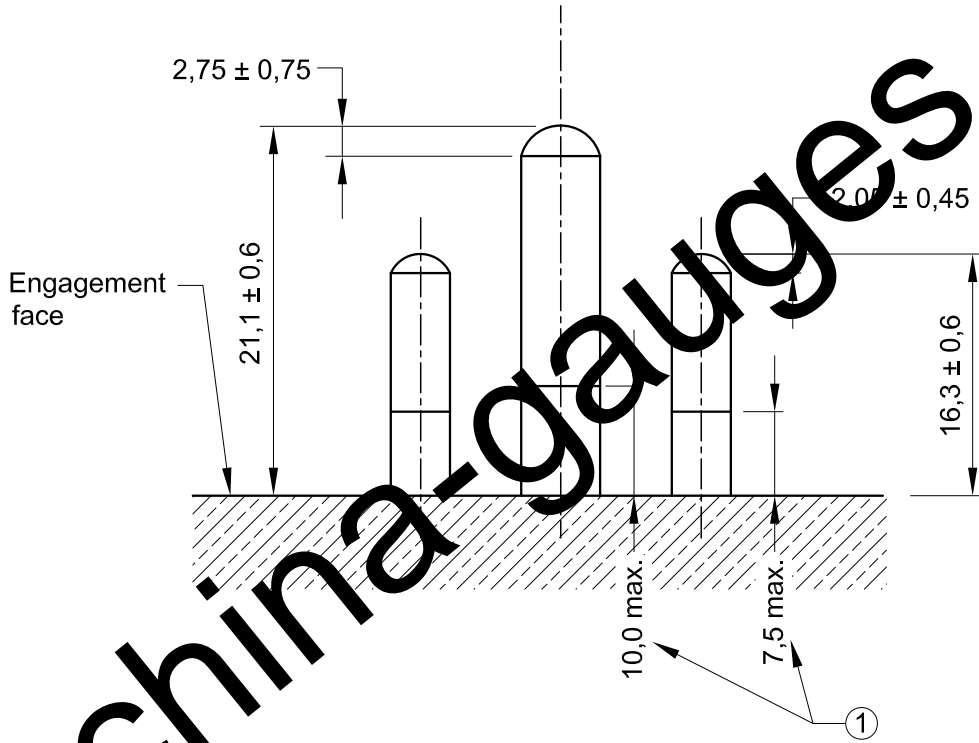
Amdt 2

Amdt 2

Amdt 2

Standard sheet 3-2 — 6 A 250 V Two-pole and earthing-pin plugs

Dimensions in millimetres

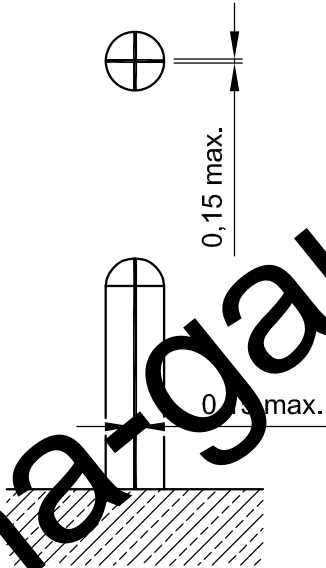


Amdt 1; amdt 2

Standard sheet 3-2 (continued)

Folded contact pins: Maximum seam width

Amdt 2
Dimensions in millimetres

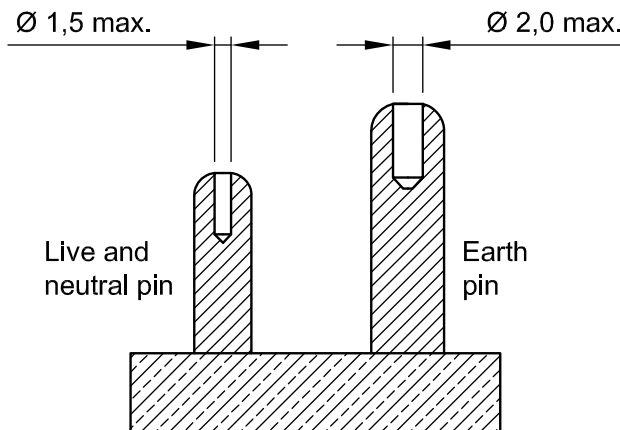


Drg.919ba

Amdt 2

Machined contact pins: Maximum flat spot or core dimensions

Amdt 2
Dimensions in millimetres



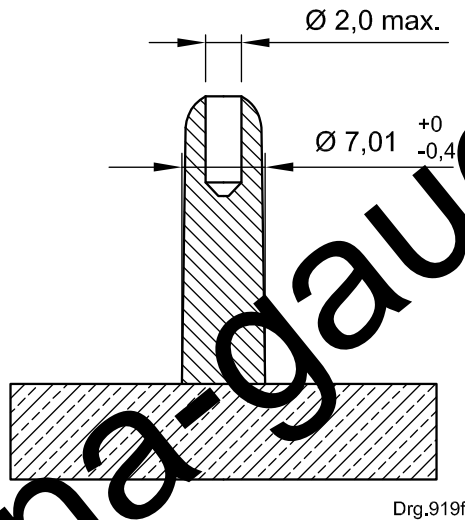
Drg.919bb

Amdt 2

Standard sheet 3-2 (concluded)

Moulded plastic earth pin: Maximum taper dimensions

Dimensions in millimetres



Amdt 2

Explanation of reference numbers on standard sheet 3-2

Amdt 2

1 Maximum length of insulating sleeves.

Amdt 2

2 Maximum profile of plug body if pins are not sleeved.

Amdt 2

3 Pin diameter is measured by means of a micrometer. Measurements are taken at at least two places, 90° apart, at two points:

Amdt 2

a) one situated at the radius transition point; and

Amdt 2

b) the other at a distance of between 5 mm to 10 mm from the end of the pin.

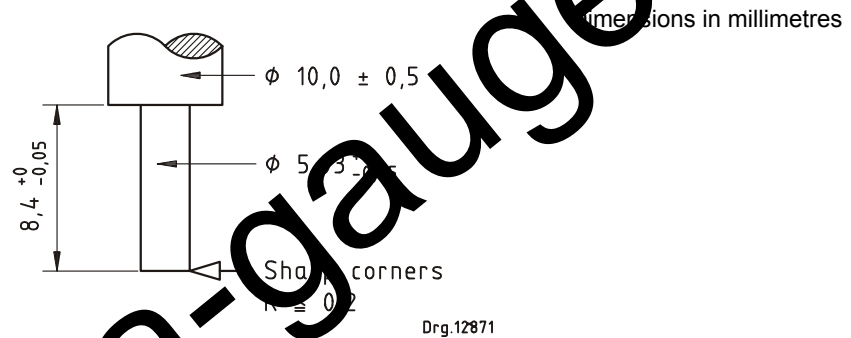
Amdt 2

All measurements shall be within the specified limits.

Amdt 2

Annex A
(normative)

Gauge for the distance from the engagement face to the current-carrying contact tubes of socket-outlets



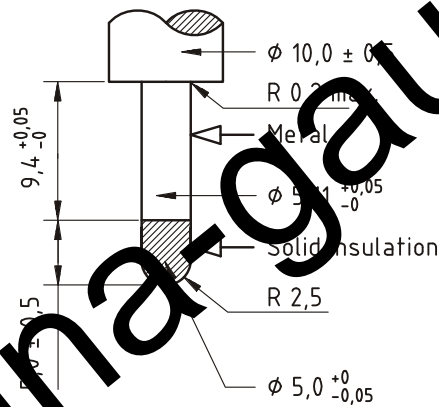
Insert the gauge as far as possible into the guidance hole of a socket-outlet, with shutters (if any) removed. Move the gauge around the periphery of the guidance hole, and ensure that it does not make contact with the socket-outlet contact tube. Indication shall be by means of a lamp connected between the gauge and the appropriate contact tube. The a.c. or d.c. voltage of the circuit shall be between 12 V and 24 V.

Gauges shall be made of a hard, corrosion-resistant metal such as stainless steel.

Annex B
(normative)

**Gauge for the distance from the engagement face to the point of first contact with the current-carrying contacts of socket-outlets
(no contact gauge)**

Dimensions in millimetres



Drq.12872

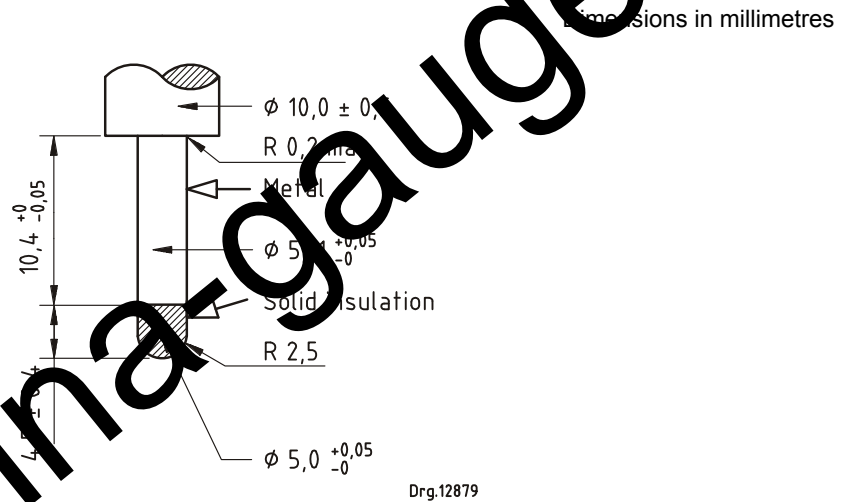
Amdt 1

Insert the gauge as far as it will go into the guidance hole of a socket-outlet. The indicator lamp described in annex A shall not light.

NOTE: The insulated tips of the gauges are for guiding the gauges.

Annex C
(normative)

**Gauge for the distance from the engagement face to the point
of first contact with the current-carrying contacts of socket-outlets
(contact gauge)**



Amdt 1

Insert the gauge as far as it will go into the guidance hole of a socket-outlet. The indicator lamp described in annex A shall light.

NOTE: The insulating tips of gauges are for guiding the gauges.

Annex D
(normative)

**Gauges for proving that it is not possible to make a connection
between a pin of a plug and a current-carrying contact of a
socket-outlet while any other current-carrying pin is accessible**
(See requirements for protection against electric shock in SANS 60884-1)

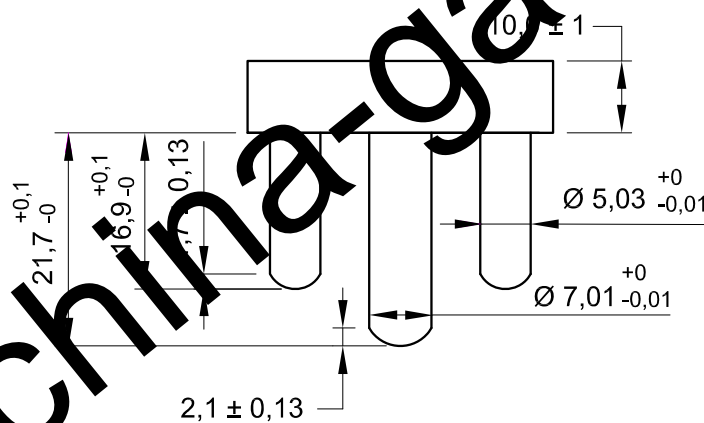
Amdt 2

NOTE The tests in accordance with this annex are conducted on socket-outlets with fully functional shutters.

Amdt 2

Dimensions in millimetres

Gauge D1

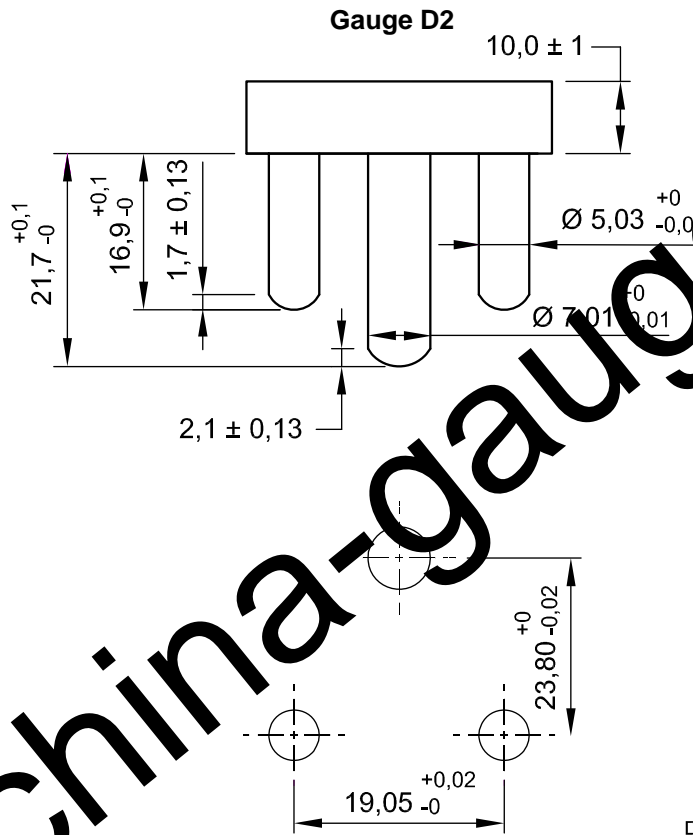


Drg.919d1

Amdt 1; amdt 2

Annex D (continued)

Dimensions in millimetre

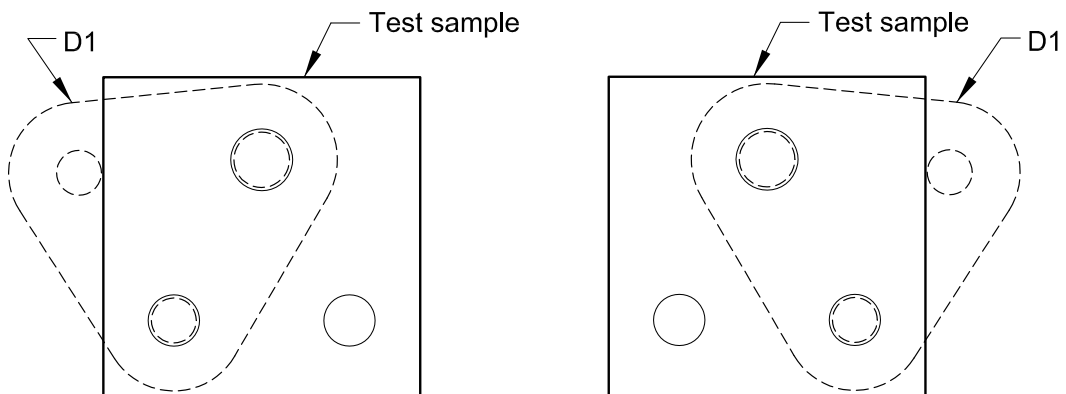


Notes on the application of gauges D1 and D2

1. Gauge D1 is inserted so as to attempt:

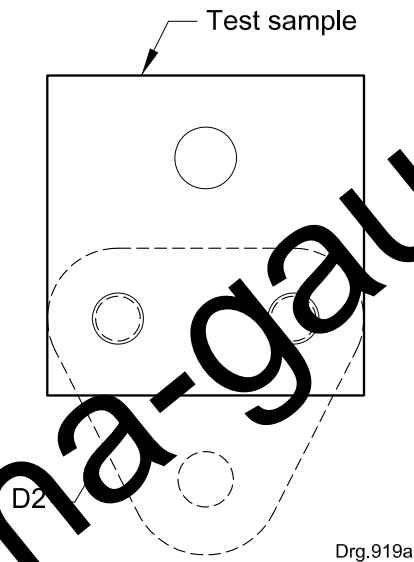
- a) the engagement of the earth pin and neutral pin, and
- b) the engagement of the earth pin and the live pin into the socket contacts.

In both cases it shall not be possible to fully engage the gauge into the socket. Contact engagement is determined such that an indicator lamp, as described in annex E, connected between the gauge plug and both socket-outlet current-carrying contact tubes, shall not light when the gauge plug is inserted into the sample socket.



Drg.919
Amdt 2

2 Gauge D2 is inserted so as to attempt the engagement of the live and neutral pins whilst the earth pin is left exposed. It shall not be possible to fully engage the gauge into the socket and expose the earth pin. Contact engagement is determined such that an indicator lamp as described in annex E, connected between the gauge plug and both socket-outlet current-carrying contact tubes, shall not light when the gauge plug is inserted into the sample socket. Amdt



Amdt 2

3 The force applied perpendicular to the gauge shall not exceed 20 N in all cases.

Amdt 2

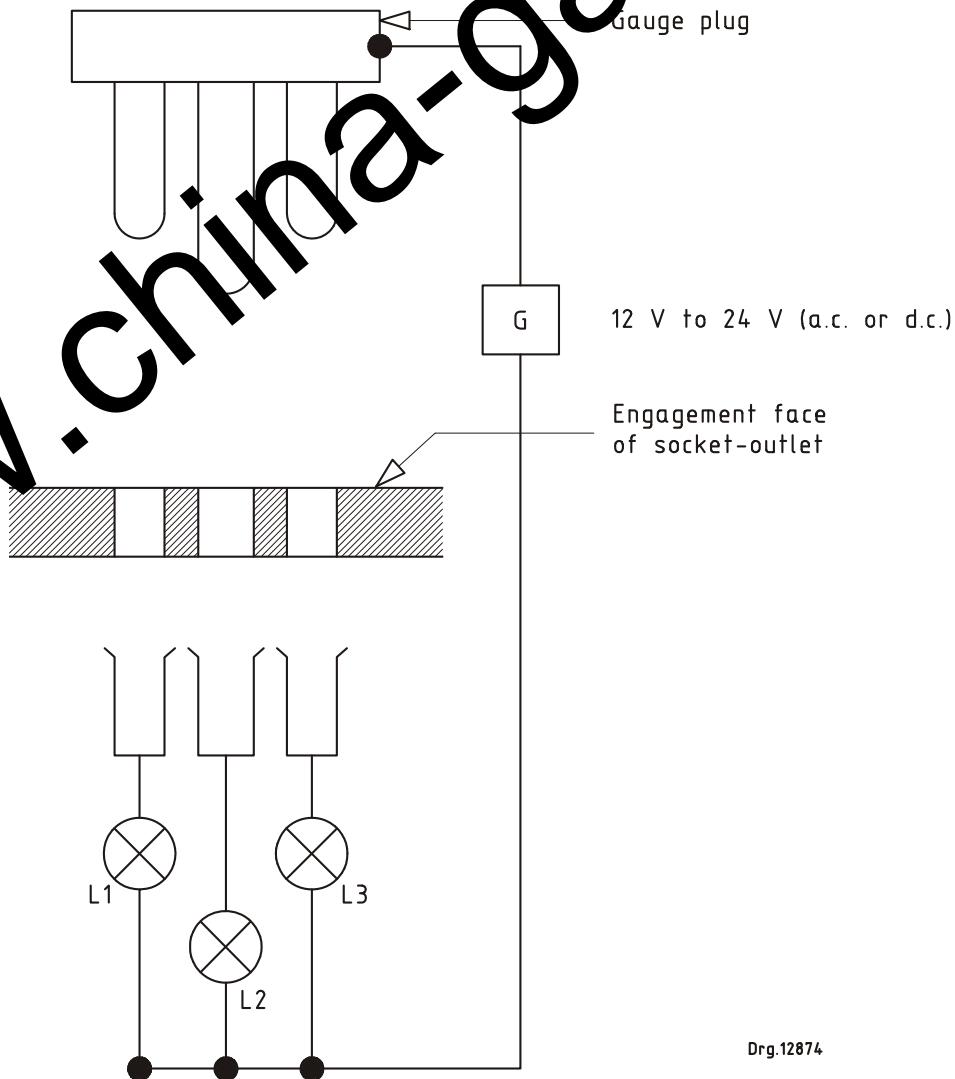
4 The gauges shall be of a hard, corrosion-resistant metal such as stainless steel.

Amdt 2

Annex E
(normative)

Gauge for proving that, during insertion of a plug, the earth pin makes a connection before either of the current-carrying pins, and that, during plug withdrawal, both current-carrying pins break connection before the earth pin (see requirements for protection against electric shock in SANS 60884-1)

Gauge E is used as a test plug and is constructed in the same manner as gauge D1 with the exception that the dimensions of the pins are the same as the original dimensions described in standard sheet 3-2. Amdt 2



Drq.12874

Annex E (concluded)

Notes on the application of gauge E

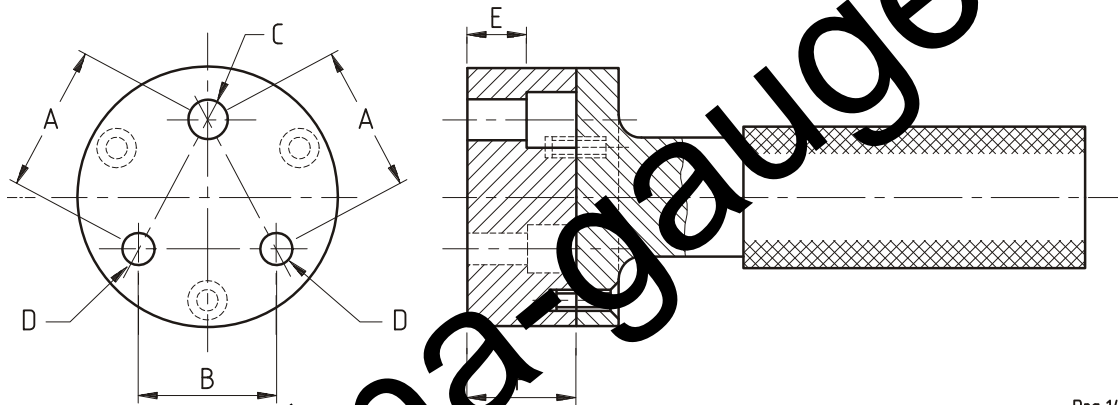
- 1** The gauge shall be of a hard corrosion-resistant metal such as stainless steel. Amdt 2
- 2** Using gauge E, connect an indicator lamp as shown above. Amdt 2
- 3** The gauge, when inserted without undue force and at any possible angle shall cause lamp L2 to light up before either lamp L1 or lamp L3. Amdt 2
- 4** When the gauge is withdrawn at any possible angle, both lamps L1 and L3 shall go out before lamp L2. Amdt 2

www.china-gauges.com

Annex F
(normative)

"GO" gauges for plugs and socket-outlets

F.1 "GO" gauge for plugs



Drq.14554

Table F.1 — Dimensions of "GO" gauge for plugs

Dimensions in millimetres									
1	2	3	4	5	6	7	8	9	10
Rated current A	A	B	Tolerance for A and B	C	D	Tolerance for C and D	E	F	Tolerance for E and F
6	22,22	19,05	± 0,03	7,22	5,23	+ 0,01 - 0,00	9,50	23	± 0,5

All plugs shall be capable of insertion into the relevant gauge without undue force.

Annex F (concluded)

F.2 "GO" gauge for socket-outlets

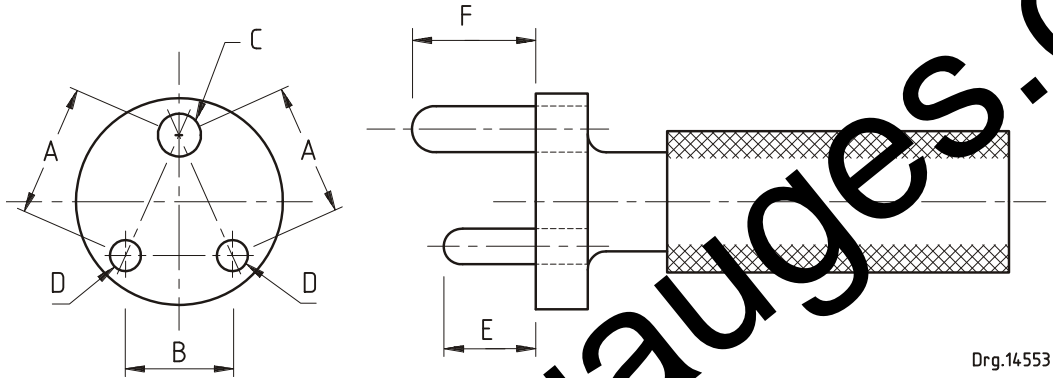


Table F.2 (a) — Dimensions of maximum "GO" gauge for socket-outlets

Dimensions in millimetres									
1	2	3	4	5	6	7	8	9	10
Rated current A	A	B	Tolerance for A and B	C	D	Tolerance for C and D	E	F	Tolerance for E and F
6	22,3	18,20	± 0,03	7,09	5,11	+ 0,00 - 0,01	17,1	21,8	+ 0,0 - 0,1

Table F.2 (b) — Dimensions of minimum "GO" gauge for socket-outlets

Dimensions in millimetres									
1	2	3	4	5	6	7	8	9	10
Rated current A	A	B	Tolerance for A and B	C	D	Tolerance for C and D	E	F	Tolerance for E and F
6	22,07	18,90	± 0,03	7,09	5,11	+ 0,00 - 0,01	17,1	21,8	+ 0,0 - 0,1

Both maximum and minimum "GO" gauges shall enter all socket-outlets without undue force.

Bibliography

Deleted by amendment No. 2.

This page has been left blank intentionally

www.china-gauges.com

SABS – Standards Division

The objective of the SABS Standards Division is to develop, promote and maintain South African National Standards. This objective is incorporated in the Standards Act, 2008 (Act No. 8 of 2008).

Amendments and Revisions

South African National Standards are updated by amendment or revision. Users of South African National Standards should ensure that they possess the latest amendments or editions.

The SABS continuously strives to improve the quality of its products and services and would therefore be grateful if anyone finding an inaccuracy or ambiguity while using this standard would inform the secretary of the technical committee responsible, the identity of which can be found in the foreword.

The SABS offers an individual notification service, which ensures that subscribers automatically receive notification regarding amendments and revisions to South African National Standards.

Tel: +27 (0) 12 428 6883 Fax: +27 (0) 12 428 6928 E-mail: sales@sabs.co.za

Buying Standards

Contact the Sales Office for South African and international standards, which are available in both electronic and hard copy format.

Tel: +27 (0) 12 428 6883 Fax: +27 (0) 12 428 6928 E-mail: sales@sabs.co.za

South African National Standards are also available online from the SABS website <http://www.sabs.co.za>

Information on Standards

The Standards Information Centre provides a wide range of standards-related information on both national and international standards. The Centre also offers an individual updating service called INFOPLIS, which ensures that subscribers automatically receive notification regarding amendments to, and revisions of, international standards.

Tel: +27 (0) 12 428 7911 / 0861 27 7227 Fax: +27 (0) 12 428 6928 E-mail: info@sabs.co.za

Copyright

The copyright in a South African National Standard or any other publication published by the SABS Standards Division vests in the SABS or, in the case of a South African National Standard based on an international standard, in the organization from which the SABS adopted the standard under licence or membership agreement. In the latter case, the SABS has the obligation to protect such copyright. Unless exemption has been granted, no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means without prior written permission from the SABS Standards Division. This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any purpose other than implementation, prior written permission must be obtained.

Details and advice can be obtained from the Manager – Standards Sales and Information Services.

Tel: +27 (0) 12 428 6883 Fax: +27 (0) 12 428 6928 E-mail: sales@sabs.co.za