

ICS 29.120.30

SABS 164-1:1997

**SOUTH AFRICAN BUREAU OF STANDARDS**

**SPECIFICATION**

**PLUGS AND SOCKET-OUTLETS FOR HOUSEHOLD AND  
SIMILAR PURPOSES — NATIONAL MODIFICATIONS OF  
INTERNATIONAL REQUIREMENTS**

**PART 1: CONVENTIONAL SYSTEM**

Obtainable from the

South African Bureau of Standards  
Private Bag X191  
Pretoria  
Republic of South Africa  
0001

Telegrams : Comparator, Pretoria  
Telex : 321308SA  
Fax : (012) 344-1568

**COPYRIGHT RESERVED**

Printed in the Republic of South Africa by the  
South African Bureau of Standards

## SABS 164-1:1997

### Notice

This part of SABS 164 was approved by the President of the South African Bureau of Standards on 4 August 1997.



SABS 164-1

Manufacturers producing plugs and socket-outlets to this part of SABS 164 may, under a mark permit issued by the SABS, apply the certification mark to the commodity as evidence to the purchaser that the commodity is being made in accordance with this part of SABS 164 and that compliance with its requirements is ensured by tests and inspections carried out by the SABS.

The mark, which is to be displayed on the product together with the number of the standard, is illustrated above.

#### NOTES

1 In terms of the Standards Act, 1993 (Act 29 of 1993), it is a punishable offence for any person other than a mark permit holder to apply a certification mark to a commodity or to refer to the SABS or any of its standards in a manner likely to create the impression that the commodity has been approved by the SABS. Furthermore, no person shall claim or declare that he or any other person complied with an SABS standard unless

- a) such claim or declaration is true and accurate in all material respects, and
- b) the identity of the person on whose authority such claim or declaration is made, is clear.

2 It is recommended that authorities who wish to incorporate any part of this standard into any legislation in the manner intended by section 31 of the Act consult the SABS regarding the implications.

This part of SABS 164 will be revised when necessary in order to keep abreast of progress. Comment will be welcome and will be considered when this part of SABS 164 is revised.

### Foreword

This fourth edition cancels and replaces the second revision (SABS 164-1:1992).

SABS 164 consists of the following parts under the general title: *Plugs and socket-outlets for household and similar purposes – National modifications of international requirements*

*Part 1: Conventional system.*

*Part 2: IEC worldwide system (16 A 250 V).*

Annexes A to F form an integral part of this part of SABS 164.

**Attention is drawn to the references given in clause 2 of this part of SABS 164. These references are indispensable for the application of this part of SABS 164.**

ISBN 0-626-11413-6

**Contents**

	Page
Notice .....	ii
Foreword .....	ii
Committee .....	iv
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Definitions</b> .....	<b>1</b>
<b>4 Requirements</b> .....	<b>1</b>
<b>5 Modifications</b> .....	<b>2</b>
<b>Annexes</b>	
<b>A Gauges for distance from engagement face to current-carrying contact tubes of socket-outlets</b> .....	<b>7</b>
<b>B Gauges for distance from engagement face to point of first contact with current-carrying contacts of socket-outlets (no contact gauges)</b> .....	<b>8</b>
<b>C Gauges for distance from engagement face to point of first contact with current-carrying contacts of socket-outlets (contact gauges)</b> .....	<b>9</b>
<b>D Gauges for proving that it is not possible to make connection between a pin of a plug and a current-carrying contact of a socket-outlet while any other current-carrying pin is accessible</b> .....	<b>10</b>
<b>E Gauges for proving that, during insertion of a plug, the earth pin makes connection before either of the current-carrying pins, and that, during plug withdrawal, both current-carrying pins break connection before the earth pin</b> .....	<b>11</b>
<b>F "GO" gauges for plugs and socket-outlets</b> .....	<b>12</b>

## SABS 164-1:1997

### Committee

At the time of approval of this part of SABS 164 by National Committee SC 3350.7C: Electrical accessories, the composition of the committee was as follows:

SABS	AJ Claasen (Chairman) VX Matchaba (Committee clerk) M Braun
Ampco (Pty) Ltd	
Chamber of Mines of South Africa	DA Kruger
Circuit Breaker Industries (Pty) Ltd	V Cohen
Conpower (Pty) Ltd	R Patterson
Department of Labour	W Benjamin
Department of Public Works	HH Kuhles
Electrical Engineering and Allied Industries Association	JC Myers
Eskom Distribution	AL Gullan
Hycon Electrical Components (Pty) Ltd	C Coode
Kimbe Electric Company of South Africa (Pty) Ltd	D Francois
Kopp Electrical	A Kopp
Litemaster Industrial Group	AD Cawse
Lumex Clipeal (Pty) Ltd	G Camperti
Nu World Industries (Pty) Ltd	JH Botha
Rotek Engineering (Pty) Ltd	D Graeff
SABS	W Breed C Koen JS van Heerden
Solar and Electro-technology	KJ Koomhof
South African Housing Trust Limited	AJ van der Elst
Spoornet Infrastructure	JH Coetzee
Switon King Electrical Industries (Pty) Ltd	D Shapiro
Telkom SA Limited	F de Kock
Texe Electric (Pty) Ltd	BD Lavery
The Association of Municipal Electricity Undertakings (Southern Africa)	JJ Roos
The Electrical Contractor's Association (South Africa)	VAH Mc Donald
The South African Association of Consulting Engineers	GC Delpont
TV and Electrical Distributors (Pty) Ltd	C D'Angel
Voltec (Pty) Ltd	NC Bronkhorst
Vortex (Pty) Ltd	MJ Freeman

**Plugs and socket-outlets for household and similar purposes — National modifications of international requirements****Part 1:**

Conventional system

**1 Scope**

This part of SABS 164 specifies the national limitations on, and additions to, the international standard for plugs and socket-outlets for household and similar purposes, as applicable to the conventional system used in South Africa.

**2 Normative references**

The following standards contain provisions which, through reference in this text, constitute provisions of this part of SABS 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 SABS 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 the South African Bureau of Standards.

SABS 1085. *Outlet boxes — Mounting centres for flush and semi-flush mounting wall outlet boxes.*

SABS IEC 884-1. *Plugs and socket-outlets for household and similar purposes — Part 1: General requirements.*

**3 Definitions**

For the purposes of this part of SABS 164, the definitions given in SABS IEC 884-1 apply.

**4 Requirements**

A plug and a socket-outlet shall comply with the relevant requirements of SABS IEC 884-1, as modified by clause 5 of this part of SABS 164.

## **5 Modifications**

**5.1** A socket-outlet and a rewirable plug shall be rated at 250 V and 6 A or 16 A.

**5.2** A socket-outlet and a rewirable plug shall have an earthing contact.

**5.3** A socket-outlet shall comply with the requirements for increased protection.

**5.4** The terminal intended for the neutral conductor shall be marked with the letter N, and that for the live conductor shall be marked with the letter L. The earthing terminal shall be marked with the symbol  $\text{⏏}$ . These markings shall be in accordance with the conventions given on the relevant standard sheets (see standard sheet 1-1, 1-2, 2-1 and 2-2). These markings shall not be placed on screws, or on any other easily removable parts.

NOTE - "Easily removable parts" are those parts that can be removed during the normal installation of the socket-outlet or during the assembly of the plug.

Terminations in non-rewirable accessories need not be marked.

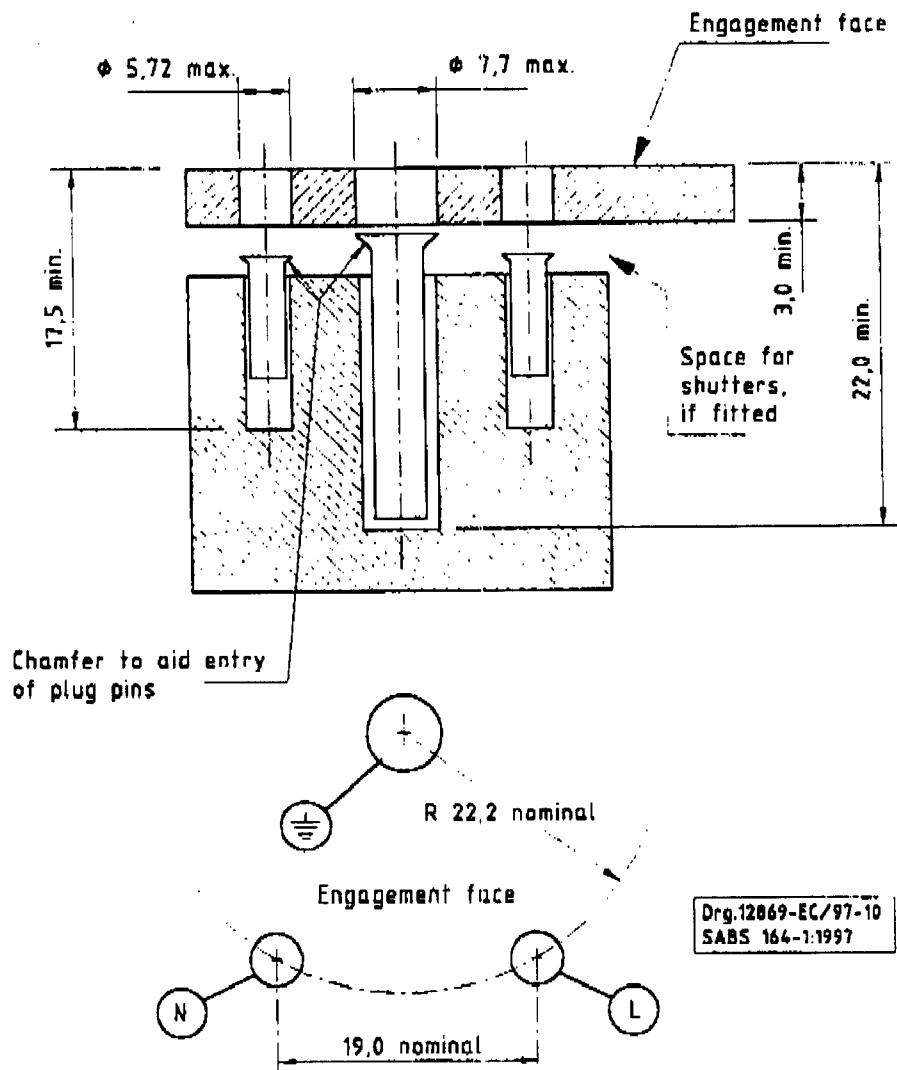
**5.5** A plug or socket-outlet shall comply with the dimensions given on the appropriate of standard sheets 1-1, 1-2, 2-1 and 2-2. The plug and the socket-outlet shall pass the tests described in the annexes.

**5.6** The means of mounting a fixed socket-outlet in a wall outlet box shall have oval holes of width  $4,9 \text{ mm} \pm 0,2 \text{ mm}$  and of length  $9,5 \text{ mm} \pm 1,5 \text{ mm}$ , or other equally suitable means, to permit rotational adjustment of the socket-outlet relative to the box. If a socket-outlet for a fixed installation is not supplied together with its own outlet box, the fixing hole centres shall comply with the requirements of SABS 1085.

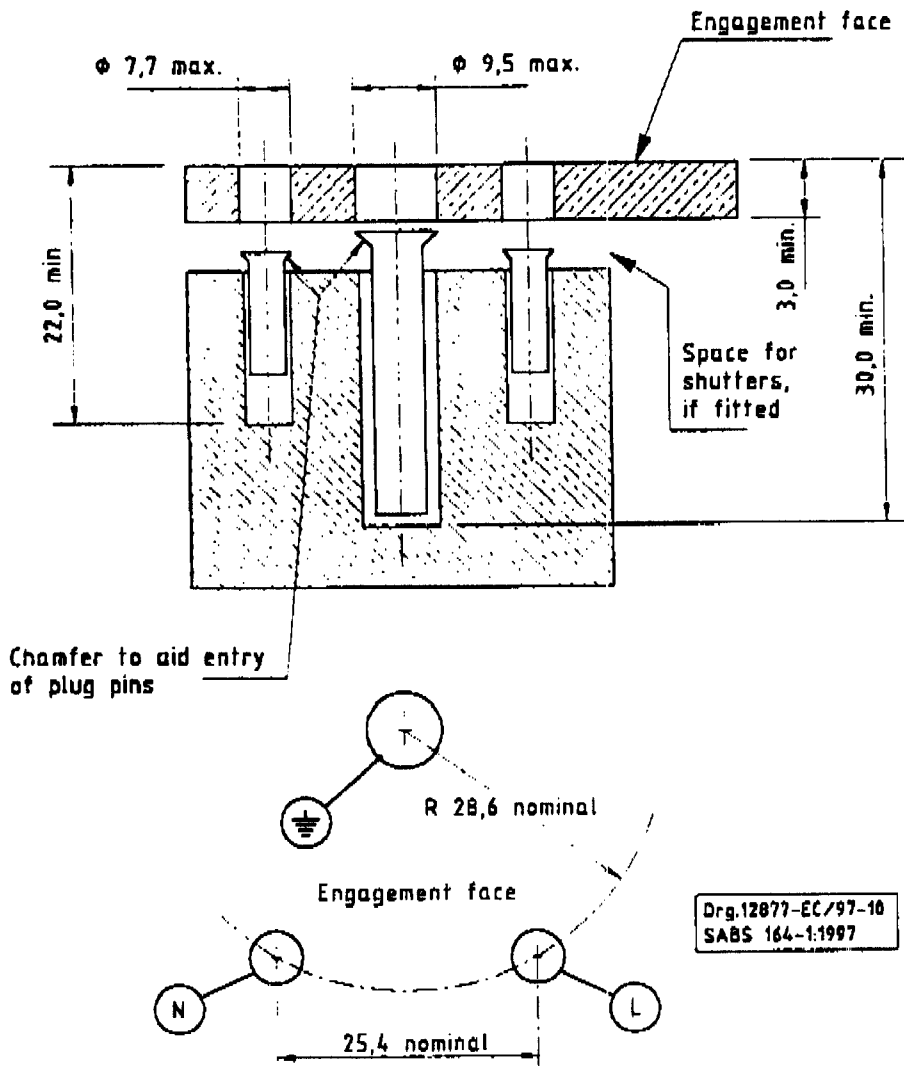
**5.7** The note to 10.2.1 of SABS IEC 884-1 does not apply.

SABS 164-1:1997

Dimensions in millimetres



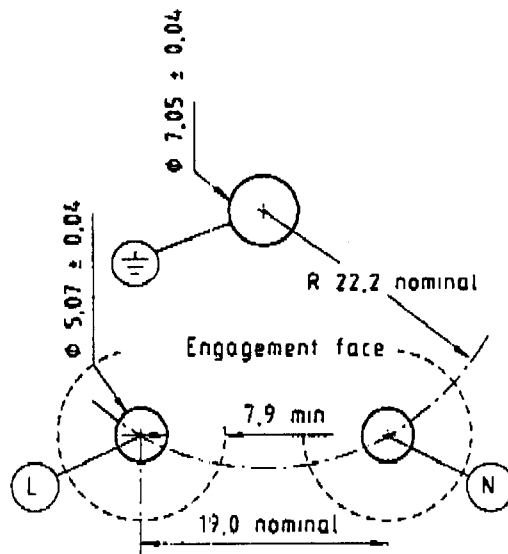
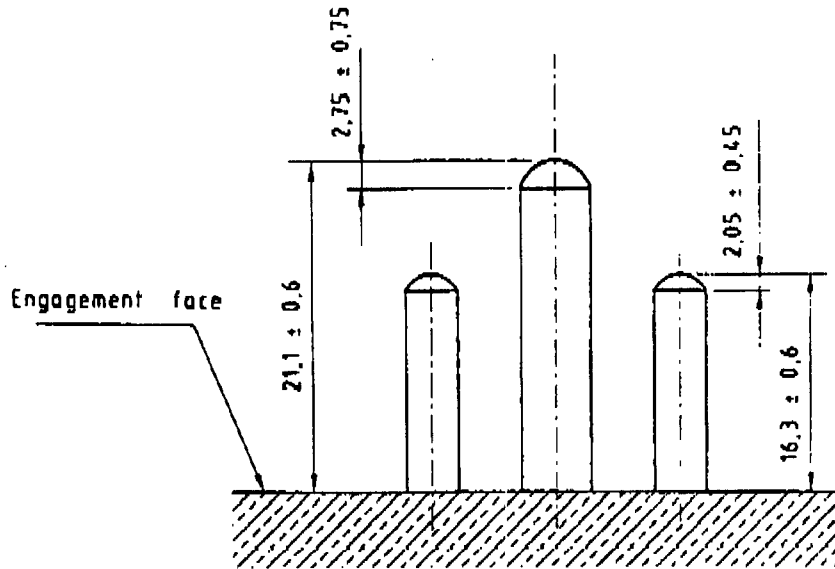
Standard sheet 1-1 - 6 A 250 V two-pole and earthing-contact socket-outlet



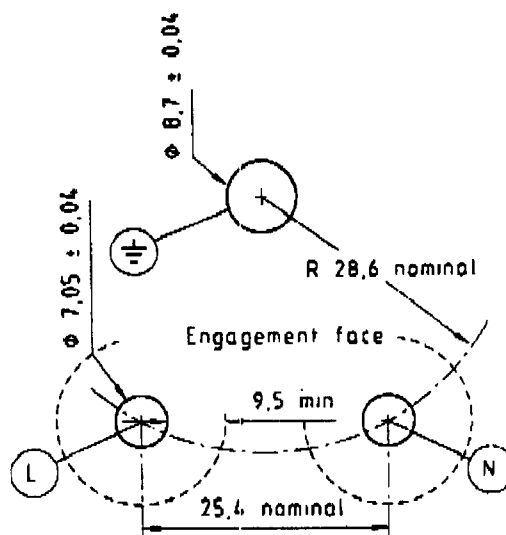
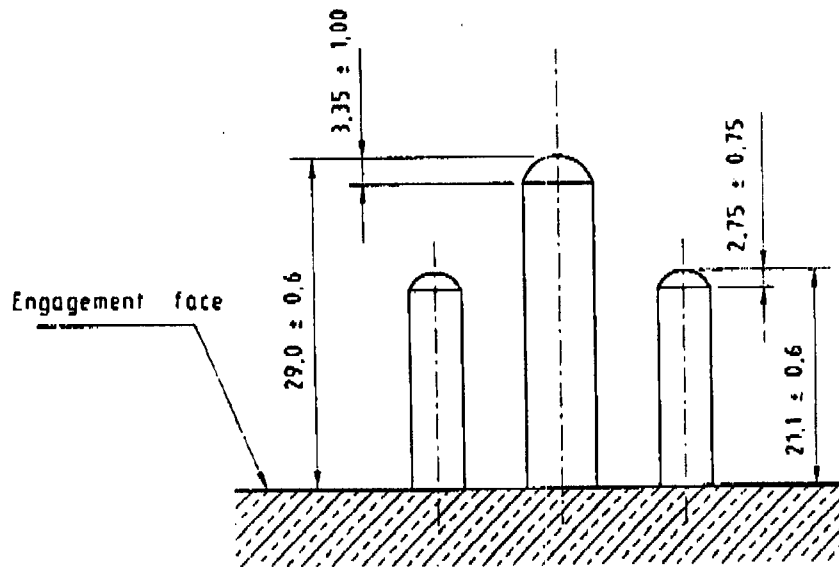
Standard sheet 1-2 - 16 A two-pole and earthing-contact socket-outlet



Dimensions in millimetres



Org 14649aEC/97-08  
SABS 164-1:1997

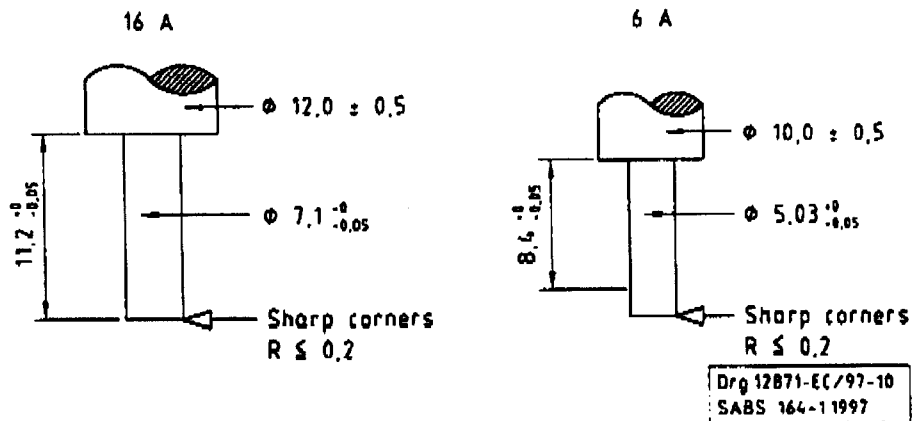


Drq 14649-EC/97-08  
SABS 164-1:1997

**Annex A**  
(normative)

**Gauges for distance from engagement face to current-carrying contact tubes of socket-outlets**

Dimensions in millimetres



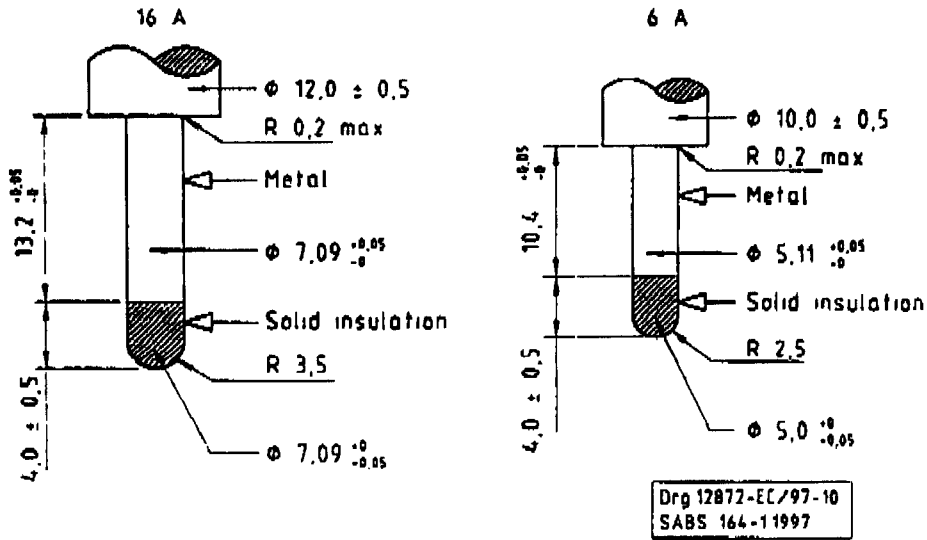
Insert an appropriate gauge as far as possible into the guidance hole of a socket-outlet, with shutters (if any) removed. Move the gauge around the periphery of the guidance hole, and ensure that it does not make contact with the socket-outlet contact tube. Indication shall be by means of a lamp connected 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)

**Gauges for distance for engagement face to point of first contact with current-carrying contacts of socket-outlets (no contact gauges)**

Dimensions in millimetres



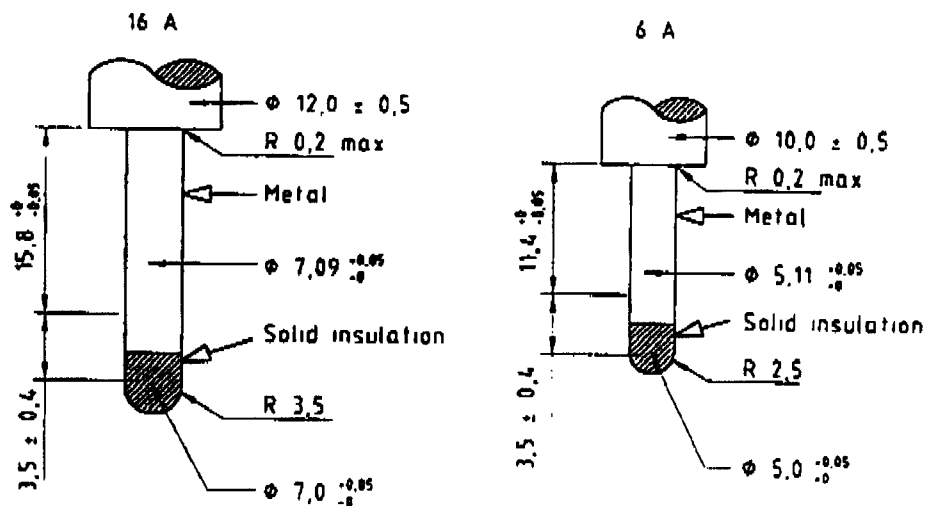
Insert an appropriate gauge as far as it will go into the guidance hole of a socket-outlet. The indicator lamp described in annex A shall not light.

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

**Annex C**  
(normative)

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

Dimensions in millimetres



Org 12879-EC/97-10  
SABS 164-1:1997

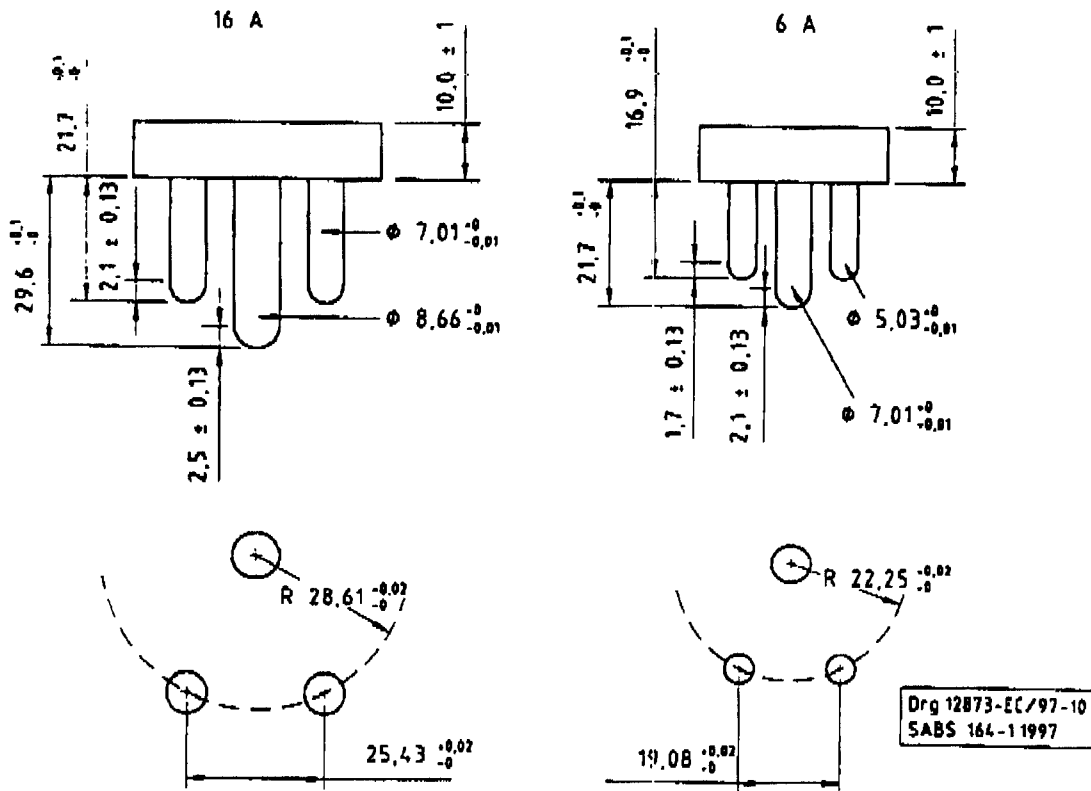
Insert an appropriate gauge as far as it will go into the guidance hole of a socket-outlet. The indicator lamp described in annex A shall light.

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

**Annex D**  
(normative)

**Gauges for proving that it is not possible to make connection between a pin of a plug and a current-carrying contact of a socket-outlet while any other current-carrying pin is accessible**

Dimensions in millimetres



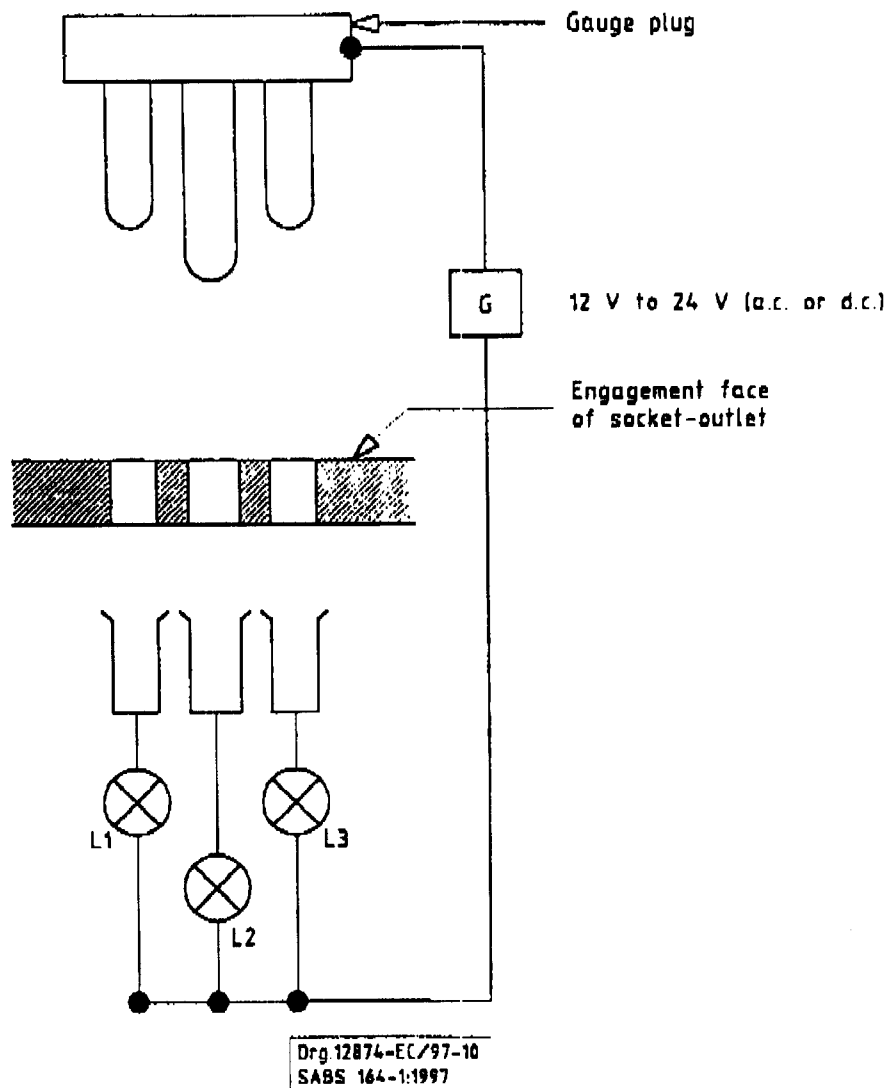
An indicator lamp as described in annex A shall be connected between a gauge plug and both socket-outlet current-carrying contact tubes. When the earth pin of the gauge plug is inserted into a sample socket-outlet, in all attitudes, the indicator lamp shall not light.

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

**Annex E**  
(normative)

**Gauges for proving that, during insertion of a plug, the earth pin makes connection before either of the current-carrying pins, and that, during plug withdrawal, both current-carrying pins break connection before the earth pin (see 10.1 of SABS 884-1)**

Using the relevant test plug of annex D, connect an indicator lamp as shown below.

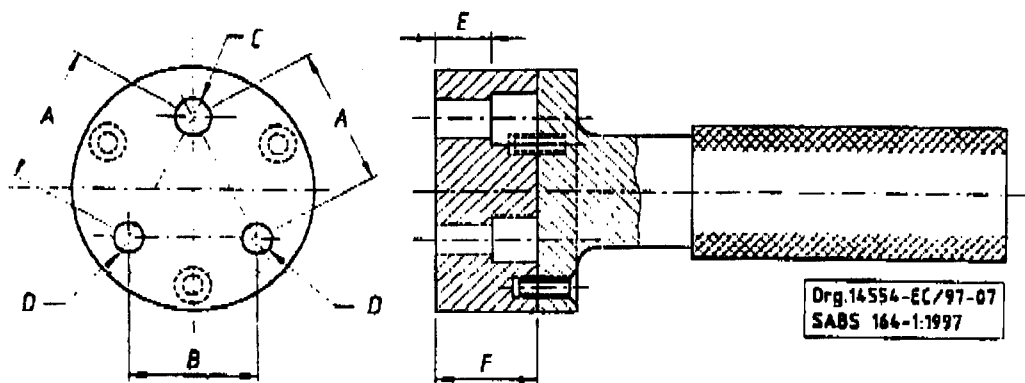


The gauge, when inserted without undue force and at any possible angle, shall cause lamp L2 to light up before either L1 or L3. When the gauge is withdrawn at any possible angle, both lamps L1 and L3 shall "go out" before lamp L2.

**Annex F**  
(normative)

**"GO" gauges for plugs and socket-outlets**

**F.1 "GO" gauges for plugs**



**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
16	26,56	25,40	± 0,03	8,87	7,21	± 0,01 0,00	11,10	31	± 0,5

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



Annex F (continued)

F.2 "GO" gauge for socket-outlets

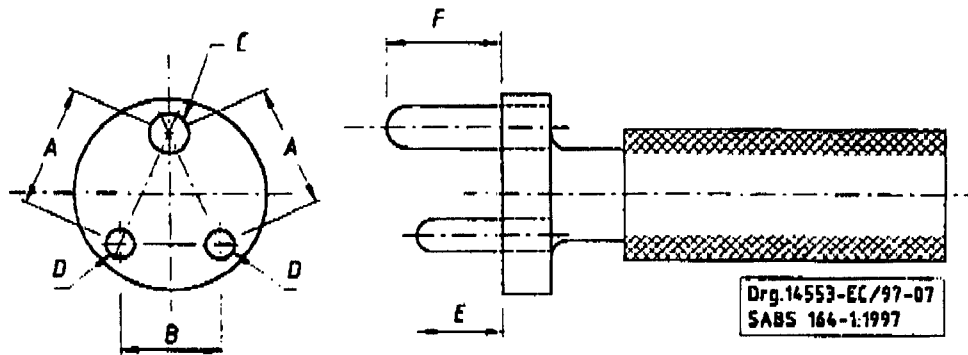


Table F.2 (a) — Dimensions of maximum "GO" gauge for socket-outlets

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	22,37	19,20	± 0,03	7,09	5,11	+ 0,00 - 0,01	17,1	21,8	+ 0,0 - 0,1
16	28,73	25,55	± 0,03	8,74	7,09	+ 0,00 - 0,01	21,8	29,8	+ 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
16	28,43	25,25	± 0,03	8,74	7,09	+ 0,00 - 0,01	21,8	29,8	+ 0,0 - 0,1

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

sabs pta