

## **SOUTH AFRICAN NATIONAL STANDARD**

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

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

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

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

### Part 4:

Dedicated system, 16 A 250 V a.c.

### 1 Scope

This part of SANS 164 covers the rating and dimensions of the 16 A dedicated plug and socket-outlet system for the connection of equipment to a dedicated supply system, having a nominal voltage of 250 V a.c. in household and similar applications in South Africa.

### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitutes 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 standard indicated below. Information on currently valid national and international standards can be obtained from Standards South Africa.

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

### 3 Definitions

For the purposes of this part of SANS 164, the definitions given in SANS 164-1 and the following apply.

#### 3.1

##### **dedicated plug**

accessory that has pins designed to engage with the contacts of a socket-outlet of both the same dedicated type and the conventional type

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#### 3.2

##### **dedicated socket-outlet**

accessory that has contacts designed to engage with the pins of a dedicated plug of the same type, but specifically designed not to engage with the pins of a conventional (non-dedicated) plug

Amdt 1

**SANS 164-4:2007**  
Edition 1.1

**3.3**

**dedicated supply system**

voltage supply isolated from the normal mains supply that has separate Live, Neutral and Earth conductors which are connected to an uninterruptible power supply device or similar, intended for the connection to special electrical equipment

**4 Requirements**

**4.1** The requirements of SANS 164-0 apply.

**4.2** Socket-outlets and rewirable plugs shall be rated at 16 A and 250 V a.c.

**4.3** Plugs and socket-outlets shall comply with the dimensions given on the appropriate of standard sheets 4-1-1, 4-1-2, 4-1-3, 4-2-1, 4-2-2 and 4-2-3.

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

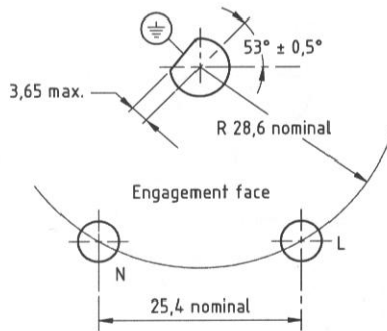
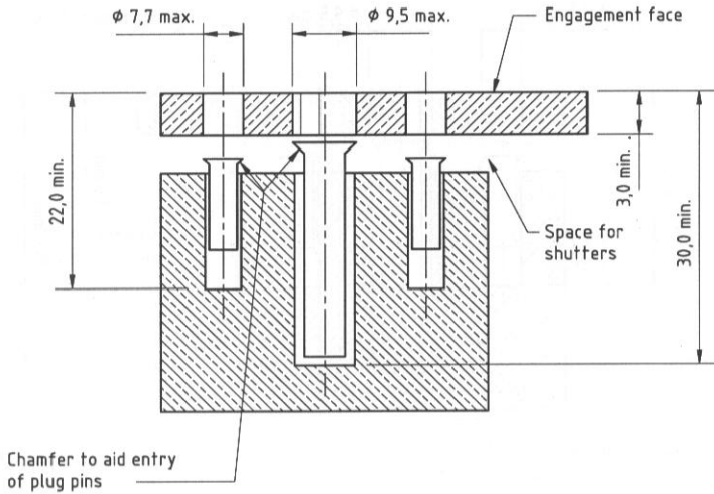
**4.4** The three different dedicated plug and socket-outlet configurations shall be colour coded as given in table 1.

**Table 1 — Colour coding of dedicated plugs and socket-outlets**

1	2	3	4
Standard sheet	Angle of earth pin flattened surface	Colour	Recommended SANS 1091 code
4-1-1 and 4-2-1	+ 53°	Black	—
4-1-2 and 4-2-2	0°	Signal red	A11
4-1-3 and 4-2-3	- 53°	National Flag blue	F04

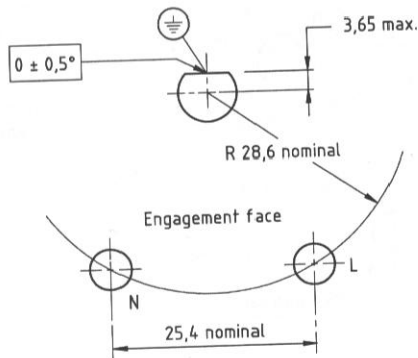
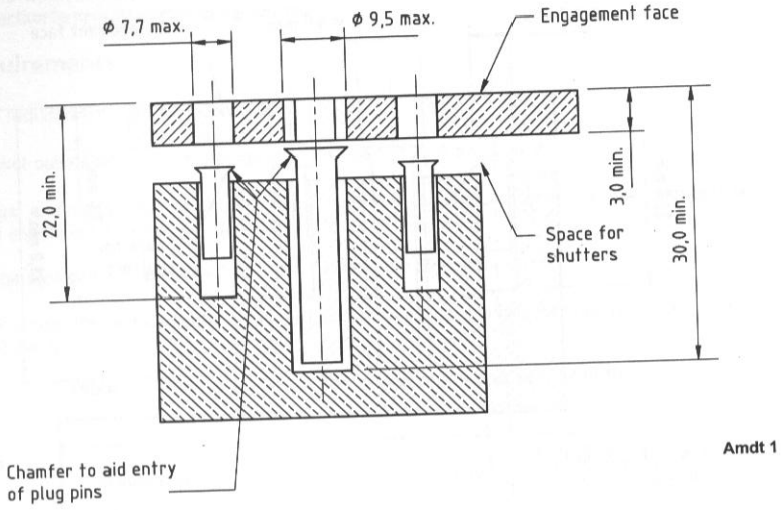
The colour shall be permanent and shall be applied to clearly show the dedicated nature of both the plug and the socket-outlet.

Dimensions in millimetres



Standard sheet 4-1-1 — 16 A 250 V Dedicated two-pole and earthing-contact socket-outlet — coloured black

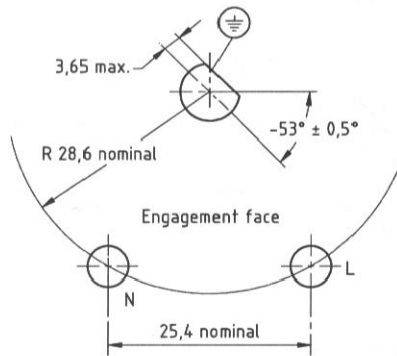
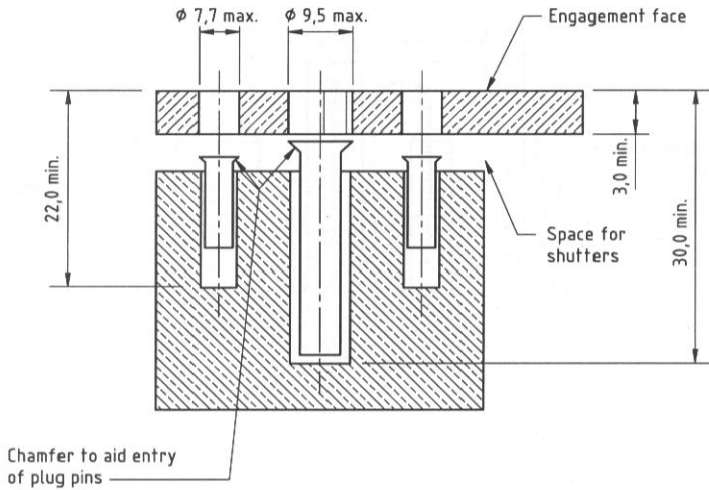
Dimensions in millimetres



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Standard sheet 4-1-2 — 16 A 250 V Dedicated two-pole and earthing-contact socket-outlet — coloured red (see table 1)

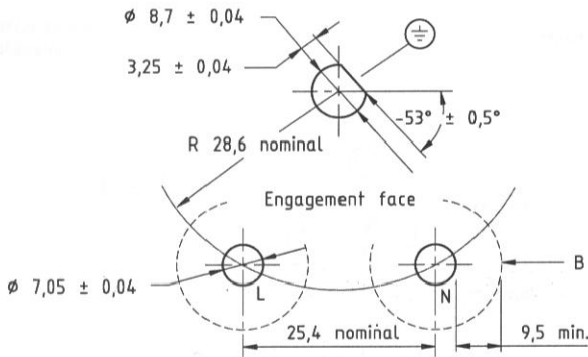
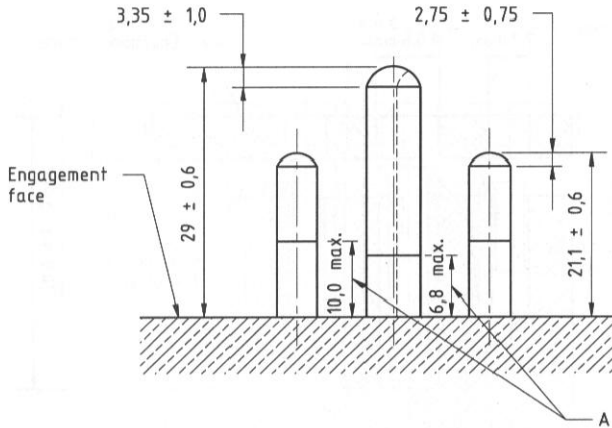
Dimensions in millimetres



Org.12869c

Standard sheet 4-1-3 — 16 A 250 V Dedicated two-pole and earthing-contact socket-outlet – coloured blue (see table 1)

Dimensions in millimetres



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**Key**

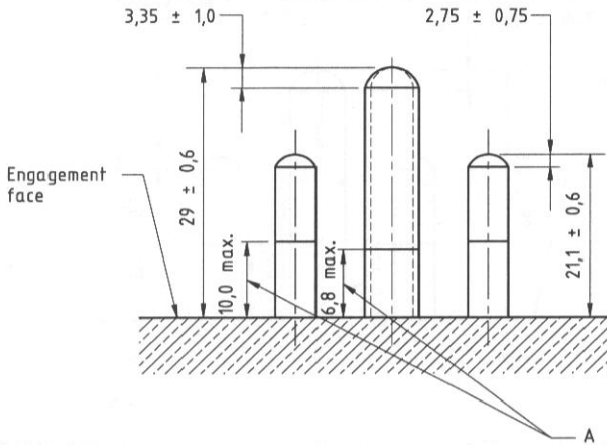
- A Maximum length of insulating sleeve
- B Minimum profile of body of plug if pins are not sleeved

Amdt 1

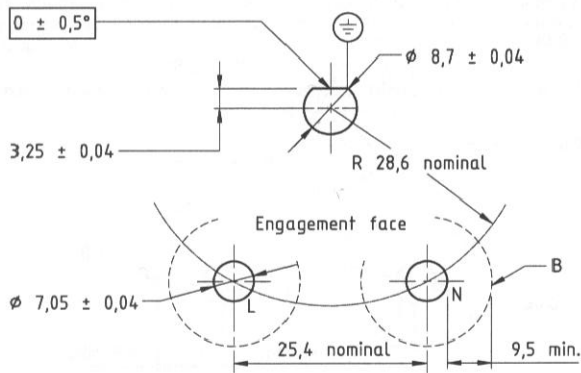
Standard sheet 4-2-1 — 16 A 250 V Dedicated two-pole and earthing-pin plug – coloured black



Dimensions in millimetres



Amdt 1



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**Key**

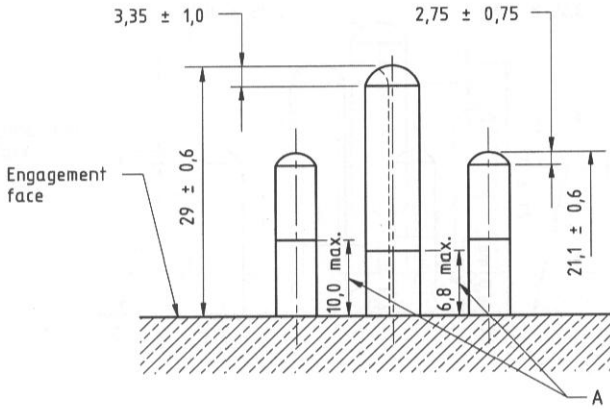
Amdt 1

- A Maximum length of insulating sleeve
- B Minimum profile of body of plug if pins are not sleeved

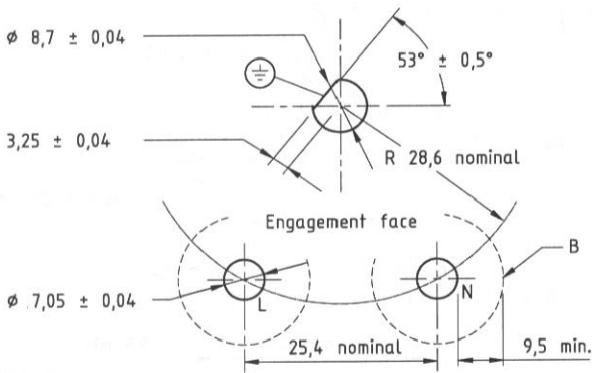
Amdt 1

Standard sheet 4-2-2 — 16 A 250 V Dedicated two-pole and earthing-pin plug – coloured red (see table 1)

Dimensions in millimetres



Amdt 1



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Amdt 1

**Key**

- A Maximum length of insulating sleeve
- B Minimum profile of body of plug if pins are not sleeved

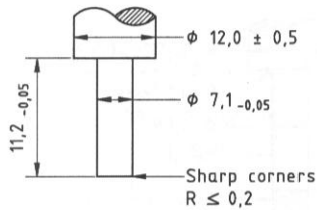
Amdt 1

Standard sheet 4-2-3 — 16 A 250 V Dedicated two-pole and earthing-pin plug – coloured blue (see table 1)

**Annex A**  
(normative)

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

Dimensions in millimetres



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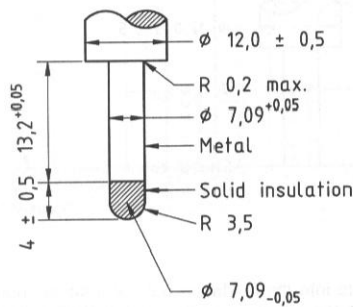
Insert the gauge as far as possible into the guidance hole of a socket-outlet, with shutters (if any) removed. Move the gauge around the periphery of the guidance hole, and ensure that it does not make contact with the socket-outlet contact tube. Indication shall be by means of a lamp connected between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

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

**Annex B**  
(normative)

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

Dimensions in millimetres



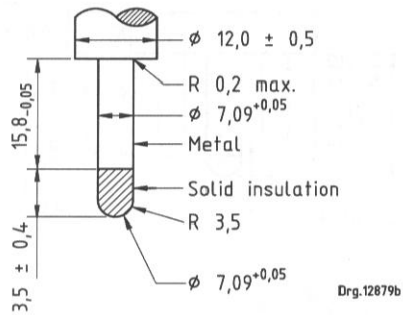
Insert the gauge as far as it will go into the guidance hole of a socket-outlet. The indicator lamp described in annex A shall not light.

NOTE The insulated tip of the gauge is for guiding the gauge.

**Annex C**  
(normative)

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

Dimensions in millimetres



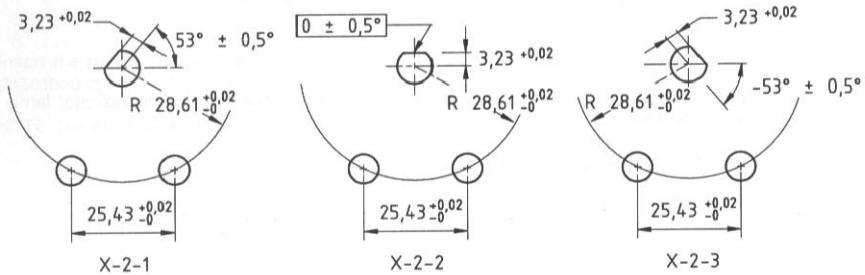
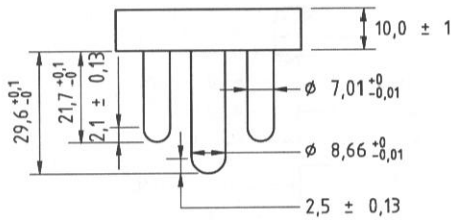
Insert the gauge as far as it will go into the guidance hole of a socket-outlet. The indicator lamp described in annex A shall light.

NOTE The insulated tip of the gauge is for guiding the gauge.

**Annex D**  
(normative)

**Gauge 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**

Dimensions in millimetres



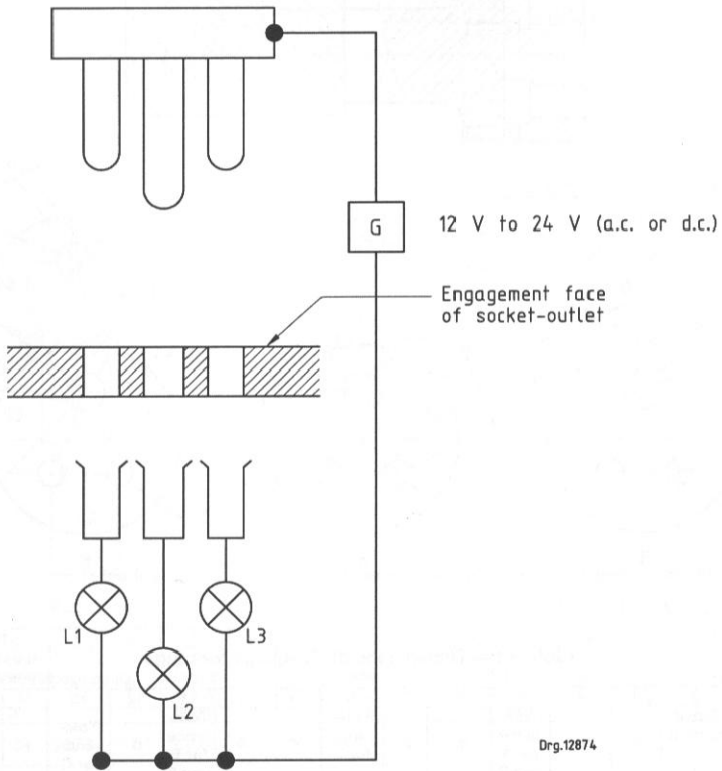
Drg.12873

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

**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)**

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

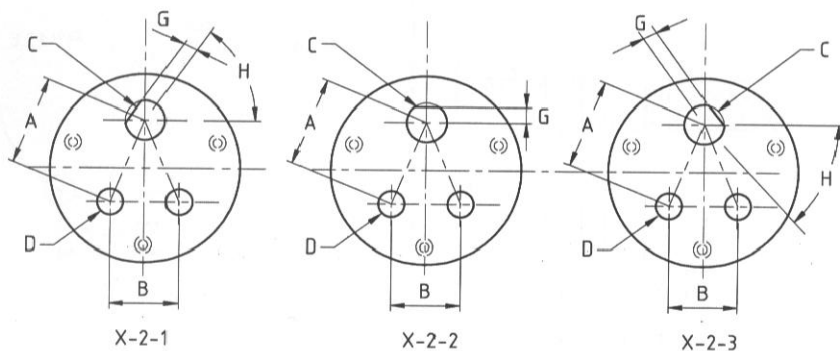
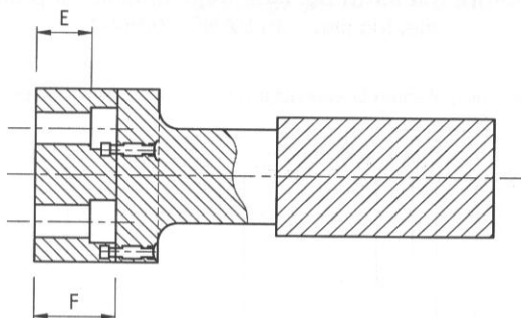


The gauge, when inserted without undue force and at any possible angle, shall cause lamp L2 to light up before either L1 or L3. When the gauge is withdrawn at any possible angle, both lamps L1 and L3 shall extinguish before lamp L2.

**Annex F**  
(normative)

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

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



**Table F.1 — Dimensions of GO-gauge for plugs**

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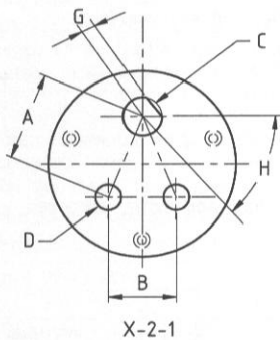
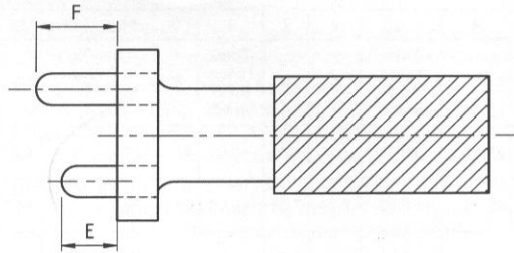
Dimensions in millimetres														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Gauge	Rated current A	A	B	Tolerance for A and B	C	D	Tolerance for C and D	E	F	Tolerance for E and F	G	Tolerance for G	H	Tolerance for H
X-2-1	16	28,58	25,40	± 0,03	8,87	7,21	± 0,01	11,10	31,0	± 0,5	3,34	± 0,01	53°	± 0,5°
X-2-2	16	28,58	25,40	± 0,03	8,87	7,21	± 0,01	11,10	31,0	± 0,5	3,34	± 0,01	0°	± 0,5°
X-2-3	16	28,58	25,40	± 0,03	8,87	7,21	± 0,01	11,10	31,0	± 0,5	3,34	± 0,01	- 53°	± 0,5°

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

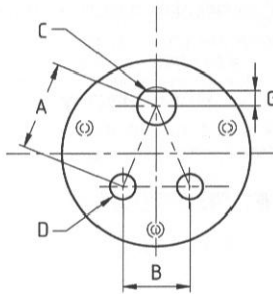


Annex F (continued)

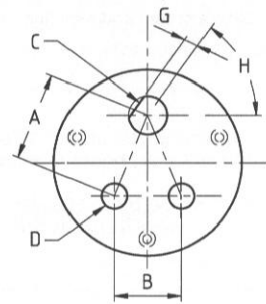
F.2 "GO" gauge for socket-outlets



X-2-1



X-2-2



X-2-3

Drg.12874a

Amdt 1

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	11	12	13	14	15
Gauge	Rated current A	A	B	Tolerance for A and B	C	D	Tolerance for C and D	E	F	Tolerance for E and F	G	Tolerance for G	H	Tolerance for H
X-2-1	16	28,73	25,55	± 0,03	8,74	7,09	- 0,01	21,8	29,8	- 0,1	3,27	± 0,01	- 53°	± 0,5°
X-2-2	16	28,73	25,55	± 0,03	8,74	7,09	- 0,01	21,8	29,8	- 0,1	3,27	± 0,01	0°	± 0,5°
X-2-3	16	28,73	25,55	± 0,03	8,74	7,09	- 0,01	21,8	29,8	- 0,1	3,27	± 0,01	53°	± 0,5°

Amdt 1

**Annex F (concluded)**

**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	11	12	13	14	15
Gauge	Rated current A	A	B	Tolerance for A and B	C	D	Tolerance for C and D	E	F	Tolerance for E and F	G	Tolerance for G	H	Tolerance for H
X-2-1	16	28,43	25,25	± 0,03	8,74	7,09	- 0,01	21,8	29,8	- 0,1	3,27	± 0,01	- 53°	± 0,5°
X-2-2	16	28,43	25,25	± 0,03	8,74	7,09	- 0,01	21,8	29,8	- 0,1	3,27	± 0,01	0°	± 0,5°
X-2-3	16	28,43	25,25	± 0,03	8,74	7,09	- 0,01	21,8	29,8	- 0,1	3,27	± 0,01	53°	± 0,5°

Amdt 1

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

### Bibliography

SANS 1091, *National colour standard*.

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

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