11. **Screw terminal** denotes a terminal in which the conductor is clamped under the head of the screw. The clamping pressure may be applied directly by the head of the screw or through an intermediate part, such as a washer, clamping plate or anti-spread device.

Examples of screw terminals are given in figure 39.

12. **Stud terminal** denotes a terminal in which the conductor is clamped under a nut. The clamping pressure may be applied directly by a suitably shaped nut or through an intermediate part, such as a washer, clamping plate or anti-spread device.

Examples of stud terminals are given in figure 39.

13. **Saddle terminal** denotes a terminal in which the conductor is clamped under a saddle by means of two or more screws or nuts.

Examples of saddle terminals are given in figure 40.

14. **Mantle terminal** denotes a terminal in which the conductor is clamped against the base of a slot in a threaded stud by means of a nut. The conductor is clamped against the base of the slot by a suitably shaped washer under the nut, by a central peg if the nut is a cap nut, or by equally effective means for transmitting the pressure from the nut to the conductor within the slot.

Examples of mantle terminals are given in figure 41.

15. **Tool** denotes a screwdriver, a coin or any other object which may be used to operate a screw or similar fixing means.

Modification 4

§ 4. GENERAL NOTES ON TESTS

Sub-clause f

Add the following explanation (see also Modification 1):

For the tests of § 28, two additional sets of three samples of fixed socket-outlets may be necessary.

Modification 4

§ 5. RATING

Sub-clause b

Replace this sub-clause by the following:

b. If a 2.5 A 250 V plug is incorporated in a cord set, the connector shall be either a 0.2 A connector or a 2.5 A connector.

Modification 4

§ 6. CLASSIFICATION

Add the letter "a" before the first line and delete the last four lines of the requirement.

Modification 4

Add the following sub-clause:

b. Fixed socket-outlets are, in addition, classified:

1. according to method of mounting:
   surface-type socket-outlets,
   semi-flush type socket-outlets, for 10/16 A 250 V two-pole socket-outlets only,
   flush-type socket-outlets,
   architrave-type socket-outlets, for 10/16 A 250 V two-pole socket-outlets only.

2. for 10/16 A 250 V two-pole socket-outlets, according to method of installation:
   socket-outlets where the cover or cover plate can be removed without displacement of the conductors (design A),
   socket-outlets where the cover or cover plate cannot be removed without displacement of the conductors (design B).

If a socket-outlet has a base which cannot be separated from the cover or cover plate, and requires an intermediate plate which can be removed for redecorating the wall, it is considered to be of design A, provided the intermediate plate meets the requirements specified for covers and cover plates.

Modification 4

§ 7. MARKING

Sub-clause f

Replace the first sentence of the test specification by the following:

Compliance with the requirements of sub-clauses a to f is checked by inspection, if necessary during the test of § 11c.

Modification 4

§ 8. DIMENSIONS

Sub-clause a
Add the following explanation:

10/16 A 250 V two-pole socket-outlets according to Standard Sheets I, III, V, XII and XIV are of design A; Standard Sheets for 10/16 A 250 V two-pole socket-outlets of design B are under consideration.

Modification 4

§ 9. PROTECTION AGAINST ELECTRIC SHOCK

Add the following sub-clause:

d. Side earthing-contacts of 10/16 A 250 V two-pole socket-outlets shall be so designed that they cannot be deformed by the insertion of a plug to such an extent that they come into contact with live parts.

Compliance is checked by the following test.
The socket-outlet is placed in such a position that the contact tubes are in the vertical position.
A test plug as shown in figure 19a is engaged with the socket-outlet with a force of 150 N, which is applied for 1 minute.
After this test, the socket-outlets shall still comply with the requirements of § 8.

Modification 4

§ 10. PROVISION FOR EARTHING

Sub-clause d
Replace this sub-clause by the following:

d. Earthing terminals shall be terminals in which connection is made by means of screws or nuts; they shall comply with the appropriate requirements of § 11, except that, for fixed socket-outlets incorporating an additional external earthing terminal, this terminal shall be at least of size 4.

Compliance is checked by inspection and by the tests of § 11, sub-clauses b to n.

Modification 4

Sub-clause e
Replace this sub-clause by the following:

e. All parts of earthing terminals shall be such that there is no risk of corrosion resulting from contact between these parts and the copper of the earthing conductor, or any other metal that is in contact with these parts.
The body of earthing terminals shall be of brass or other metal no less resistant to corrosion, unless it is a part of the metal frame or enclosure, when the screw or nut shall be of brass or other metal no less resistant to corrosion.

If the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloy, precautions shall be taken to avoid the risk of corrosion resulting from contact between copper and aluminium or its alloys.

Compliance is checked by inspection.

Screws or nuts of plated steel withstanding the corrosion test referred to in § 11h are considered to be of a metal no less resistant to corrosion than brass.

A test for checking the resistance to corrosion is under consideration.

Modification 4

Sub-clause f

Replace this sub-clause by the following:

f. Clamping screws or nuts of earthing terminals shall be adequately locked against accidental loosening and it shall not be possible to loosen them without the aid of a tool.

Compliance is checked by inspection and by manual test.

In general, the designs of terminals shown in the figures 38 to 41 meet this requirement, provided they comply with the tests of § 11, sub-clauses b to n, and are not subject to excessive vibration or temperature cycling in the accessory.

If pillar terminals are subject to excessive vibration or temperature cycling, it may be necessary to incorporate in the terminal a resilient part, such as a pressure plate.

Modification 4

§ 11. TERMINALS

Replace this clause by the following (see also Modification 2):

a. Terminals of accessories shall allow adequate connection of the conductors.

Compliance is checked:
for rewirable accessories, by the tests of sub-clauses b to n,
for non-rewirable accessories, by the test of sub-clause o.

b. For rewirable accessories, the connection of external conductors shall be made to terminals in which connection is made by means of screws, nuts or equally effective devices.

Compliance is checked by inspection.

c. Terminals shall allow the proper connection of copper conductors having nominal cross-sectional areas as shown in the following table, and the conductor space shall be at least equal to that specified in figures 38 to 41, as appropriate.

Accessory	Nominal cross-sectional areas mm²		Terminal size
	Flexible cables and cords	Cables for fixed wiring	
10/16 A 250 V plugs and portable socket-outlets	0.75 to 1.5	–	1
10/16 A 250 V fixed socket-outlets	–	1 to 2.5	2
16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets	1 to 2.5	–	2
16 A 250/380 V and 16 A 380 V fixed socket-outlets . . .	–	1.5 to 4	3
25 A 380 V plugs and portable socket-outlets	2.5 to 6	–	4[1])
25 A 380 V fixed socket-outlets	–	2.5 to 10	4 or 5
[1]) Terminals of size 4 are not suitable for 6 mm² flexible conductors of some special constructions, in which case terminals of size 5 must be used.			

Compliance is checked by inspection, by measurement and by fitting conductors of the smallest and largest cross-sectional areas specified.

For this test, flexible or rigid (solid or stranded) conductors, as appropriate, must be used.

d. For pillar terminals, the distance between the clamping screw and the end of the conductor, when fully inserted, shall be at least equal to that specified in figure 38.
For mantle terminals, the distance between the fixed part and the end of the conductor, when fully inserted, shall be at least equal to that specified in figure 41.

Compliance is checked by measurement, after a solid conductor of the largest cross-sectional area specified in the table of sub-clause c has been fully inserted and clamped.

The minimum distance between the clamping screw and the end of the conductor applies only to pillar terminals in which the conductor cannot pass right through.

e. Terminals shall be so designed or located that neither a solid conductor nor a wire of a stranded conductor can slip out while the clamping screws or nuts are being tightened.

Compliance is checked by the following test.
Terminals are fitted with a conductor having the composition shown in the following table.

Terminal size	*Number of wires and nominal diameter of wires in millimetres*	
	Flexible conductors	*Rigid conductors*
1	*30 x 0.25*	*7 x 0.50*
2	*50 x 0.25*	*7 x 0.67*
3	*56 x 0.30*	*7 x 0.85*
4	*84 x 0.30*	*7 x 1.04*
5	*84 x 0.30*	*7 x 1.35*

Before insertion into the terminal, rigid conductors are reshaped and flexible conductors are twisted in one direction so that a uniform twist of one complete turn in a length of approximately 2 cm is obtained.
The conductor is inserted into the terminal over a length equal to the minimum distance prescribed or, if no distance is prescribed, until the conductor just projects from the far side of the terminal and in the position most likely to assist a wire to escape. The clamping screw or nut is then tightened with a torque equal to two thirds of that shown in the appropriate column of the table of S 26a.
For flexible conductors, the test is repeated with a new conductor, which is twisted as described before, but in the opposite direction.
After the test, no wire of the conductor shall have escaped into or through the gap between the clamping means and the retaining device.

f. Terminals shall allow the conductor to be connected without special preparation.

Compliance is checked by inspection.

The term "special preparation" covers soldering of the wires of the conductor, use of cable lugs, formation of eyelets, etc., but not the reshaping of the conductor before its introduction into the terminal or the twisting of a flexible conductor to consolidate the end.

g. Screws and nuts for clamping the conductors shall not serve to fix any other component, except that they may also clamp internal conductors if these are so arranged that they are unlikely to be displaced when fitting external conductors.

Compliance is checked by inspection during the test of sub-clause c.

The clamping means for the conductor may be used to stop rotation or displacement of the terminal, or to stop rotation of the pins of plugs.

h. Terminals shall be resistant to corrosion.

Compliance is checked by a corrosion test made for the complete accessory, unless the body of the terminal is of copper or an alloy containing at least 58% copper for parts that are worked cold or at least 50% copper for other parts.

For terminals having a body of a metal other than copper or copper alloy as specified above, a test for verifying the resistance to corrosion is under consideration; if such a test is introduced, it must be made before the tests of sub-clauses j and k and of § 19.

i. Terminals shall have adequate mechanical strength.
Screws and nuts for clamping the conductors shall have a metric ISO thread or a thread comparable in pitch and mechanical strength.
Screws shall not be of metal which is soft or liable to creep, such as zinc or aluminium.

Compliance is checked by inspection and by the tests of sub-clauses j and k and of § 19.

Provisionally, SI, BA and UN threads are considered to be comparable in pitch and mechanical strength to metric ISO thread.

j. Terminals shall be properly fixed to the accessory. When the clamping screws or nuts are tightened or loosened, the terminal shall not work loose, internal wiring shall not be subjected to stress, and creepage distances and clearances shall not be reduced below the values specified in § 27a.

Compliance is checked by inspection, by measurement and by the test of § 26a.

These requirements do not preclude floating terminals or terminals mounted on floating elements, but any movement must be sufficiently limited so as to prevent non-compliance with this specification and to assure the correct operation of the accessory.

Terminals may be prevented from working loose by fixing with two screws, by fixing with one screw in a recess such that there is no appreciable play, or by other suitable means.

Covering with sealing compound or resin is considered to be sufficient for preventing a terminal from working loose, provided the sealing compound or resin is not subject to stress in normal use, and the effectiveness of the sealing compound or resin is not impaired by temperatures attained by the terminal under the most unfavourable conditions specified in this specification.

k. Terminals shall be so designed that they clamp the conductor reliably and between metal surfaces.

Compliance is checked by inspection and by the following test.

The terminals are fitted with conductors of the smallest and largest cross-sectional areas specified in sub-clause c, the terminal screws being tightened with a torque equal to two thirds of that shown in the appropriate column of the table of § 26a.

If the screw has a hexagonal head with a slot, the torque applied is equal to two thirds of that shown in column III of that table.

Each conductor is then subjected to a pull of the value shown in the following table; the pull is applied without jerks, for 1 minute, in the direction of the axis of the conductor space.

Accessory	*Pull N*
10/16 A 250 V plugs and portable socket-outlets	*40*
10/16 A 250 V fixed socket-outlets, 16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets	*50*
16 A 250/380 V and 16 A 380 V fixed socket-outlets . . .	*50*
25 A 380 V accessories	*80*

During the test, the conductor shall not move noticeably in the terminal.

For this test, flexible or rigid (solid or stranded) conductors, as appropriate, must be used.

l. Terminals shall be so designed that they clamp the conductor without und damage to the conductor.

Compliance is checked by inspection of the conductors, after conductors the smallest and largest cross-sectional areas specified in sub-clause c have be clamped and loosened once, the maximum torque applied to clamp the co ductor being equal to two thirds of that specified in the appropriate column the table of § 26a, and after the test of § 19.
If the screw has a hexagonal head with a slot, the torque applied is equal two thirds of that shown in column IV of that table.

Conductors are considered to be unduly damaged if they show deep or sharp ind tations.
For this test, flexible or rigid (solid or stranded) conductors, as appropriate, must used.

m. Plugs and portable socket-outlets shall be so designed that terminal screws nuts cannot become loose and fall out of position in such a way that th establish an electrical connection between live parts and the earthing termi or metal parts connected to the earthing terminal.

Compliance is checked by inspection during the test of sub-clause c.

n. Terminals of plugs and portable socket-outlets shall be so located or shield that, should a wire of a stranded conductor escape from a terminal when t conductors are fitted, there is no risk of accidental contact between live pa of different polarity or between such parts and accessible metal parts, and risk that wires emerge from the enclosure.

Compliance is checked by inspection and, where the risk of accidental cont between live parts and accessible metal parts is concerned, by the following t

An 8 mm length of insulation is removed from the end of a flexible conduc having the minimum nominal cross-sectional area specified in sub-clause c. C wire of the stranded conductor is left free and the other wires are fully inser as in normal use into, and clamped in, the terminal.
The free wire is bent, without tearing the insulation back, in every possible rection, but without making sharp bends round barriers.
The free wire of a conductor connected to a live terminal shall not touch a metal part which is accessible or is connected to an accessible metal part, a shall not escape from the enclosure.
The free wire of a conductor connected to the earthing terminal shall not tou any live part.

If necessary, the test is repeated with the free wire in another position.
The prescription that sharp bends should not be made round barriers does not im that the free wire must be kept straight; sharp bends are made if these are likely occur when connecting up the accessory.

o. For non-rewirable accessories, the connection of external conductors shall be made to terminations for soldered, welded, crimped or similar connection; screwed connections shall not be used.

Compliance is checked by inspection.

If it is necessary to dismantle the sample for the inspection, this is made after the tests of § 27.

Modification 4

§ 12. CONSTRUCTION OF FIXED SOCKET-OUTLETS

Insert the following sub-clause between sub-clauses a and b:

a1. Parts of contact-tube assemblies which will be in contact with the portion of the pin intended to make electrical contact when the plug is fully inserted in the socket-outlet, shall not be of insulating material.

Compliance is checked by inspection.

The portion of the pin intended to make electrical contact can be determined from the distance between the contact tube and the engagement face specified in Standard Sheet I, III, V, VIII or X.

Modification 4

Sub-clause g

Replace the first line of the requirement by the following:

g. 10/16 A 250 V two-pole socket-outlets shall be so constructed as to permit:

easy introduction and connection of the conductors in the terminals,
adequate space between the underside of the base and the surface on which the base is mounted or between the sides of the base and the enclosure, cover or mounting box, so that, after installation of the socket-outlet, the insulation of the conductors does not come into contact with live parts of different polarity.

In addition, socket-outlets of design A shall permit:

easy fixing of the base in the enclosure or in the mounting box and correct positioning of the conductors,
easy positioning and removal of the cover or cover plate, without displacing the conductors.

Other socket-outlets shall be so constructed as to permit:

Modification 4

Replace in the last line of the test specification *§ 11b* by *§ 11c*.

Modification 4

Replace the explanation by the following:

The requirement stating that the construction shall allow the conductors to be easily secured in the terminals implies, for example, that it must be possible to operate the screw of the earthing terminal with a screwdriver placed in the direction of the axis of the screw, without the risk of permanent deformation of any part of the socket-outlet.

For 10/16 A 250 V two-pole socket-outlets, additional requirements are under consideration.

Modification 4

Insert the following sub-clause between sub-clauses h and i:

h1. Within a distance of 7 mm from the centre of each of the entry openings for the pins of a plug, no metal parts shall be flush with the engagement face.

Compliance is checked by inspection and by measurement.

Parts of the earthing circuit and assembly screws are examples of metal parts not allowed within the area specified; recessed metal parts are allowed, provided the requirements with regard to creepage distances and clearances are met when the most unfavourable plug incorporating metal rings around the pins is inserted.

Modification 4

Sub-clause k

Replace in the last line of the test specification *§ 11b* by *§ 11c*.

Modification 4

§ 13. CONSTRUCTION OF PLUGS AND PORTABLE SOCKET-OUTLETS

Insert the following sub-clause between sub-clauses d and e:

d1. Parts of contact tube assemblies which will be in contact with the portion of the pin intended to make electrical contact when the plug is fully inserted in the socket-outlet, shall not be of insulating material.

Compliance is checked by inspection.

The portion of the pin intended to make electrical contact can be determined from the distance between the contact tube and the engagement face specified in Standard Sheet I, III, V, VIII or X.

Modification 4

Sub-clause f

Add the following explanation:

Parts of the enclosure linked together by flexible means are considered to be separate parts.

Modification 4

Sub-clause j

Replace in the last line of the test specification *§ 11b* by *§ 11c.*

Modification 4

Insert the following sub-clause between sub-clauses j and k:

j1. Within the area covered by a ring concentric with each of the pins and having an outer diameter of 14 mm and an inner diameter of 7 mm, no metal parts shall be flush with the engagement face of plugs.

Compliance is checked by inspection and by measurement.

Parts of the earthing circuit and assembly screws are examples of metal parts not allowed within the area specified; recessed metal parts are allowed, provided the requirements with regard to creepage distances and clearances are met when the plug is inserted in the most unfavourable socket-outlet having metal parts flush with the engagement face.

Modification 4

Insert the following sub-clause between sub-clauses k and l:

k1. Within a distance of 7 mm from the centre of each of the entry openings for the pins of a plug, no metal parts shall be flush with the engagement face of portable socket-outlets.

Compliance is checked by inspection and by measurement.

Parts of the earthing circuit and assembly screws are examples of metal parts not allowed within the area specified; recessed metal parts are allowed, provided the requirements with regard to creepage distances and clearances are met when the most unfavourable plug incorporating metal rings around the pins is inserted.

Modification 4

§ 19. TEMPERATURE RISE

Replace in the fifth line of the test specification *§ 11b* by *§ 11c.*

Modification 4

Replace in the explanation § 11e by § 11l.

Modification 4

§ 23. FLEXIBLE CABLES AND CORDS AND THEIR CONNECTION

Sub-clause a

Insert the following after the first paragraph of the requirement:

For 2.5 A 250 V and 10/16 A 250 V plugs for Class II appliances, the flexible cable or cord shall be not lighter than light polyvinyl chloride sheathed flexible cord (code designation CEE (13) 52), unless the plug is a part of a cord set incorporating a flat twin tinsel cord (code designation CEE (13) 41).

For other non-rewirable 10/16 A 250 V plugs, the flexible cable or cord shall be not lighter than flat twin flexible cord (code designation CEE (13) 42).

Modification 4

Replace the 11th to 16th lines of the requirement by the following:

when incorporated in a cord set provided with
a 0.2 A connector . . . . . 0.5 mm² or flat twin tinsel cord,

when incorporated in a cord set provided with
a 2.5 A connector . . . . . 0.75 mm² [1].

Modification 4

Add the following explanation:

For particular applications of 2.5 A 250 V plugs for Class II appliances, a lighter type of flexible cord is allowed, if specifically permitted by the relevant specification for appliances.

Modification 4

Sub-clause d

Replace in the eighth line the code designation *"CEE (2) 51"* by *"CEE (2) 55"*.

Modification 4

Replace in the first line of the table the code designation *"CEE (2) 51"* by *"CEE (2) 55"*.

Modification 4

Replace in the 13th, 15th, 17th and 19th lines of the table the code designation *"CEE (2) 61"* by *"CEE (2) 65"*.

Modification 4

Sub-clause e

Replace the last six lines of the test specification by the following:

During the test, the current shall not be interrupted and no short-circuit shall occur between the conductors of the flexible cable or cord.

After the test, the samples shall show no damage within the meaning of this specification, the guard shall not have separated from the body and the insulation of the flexible cable or cord shall show no sign of abrasion or wear; broken strands of the conductors shall not have pierced the insulation so as to become accessible.

Modification 4

Replace the explanation by the following (see also Modification 1):

A short-circuit between the conductors of the flexible cable or cord is considered to occur if the current attains a value equal to twice the current specified.

If, in spite of the fact that the current is not interrupted during the test, there is doubt with regard to the mechanical continuity of any circuit, the samples are examined to ascertain that no conductor has separated from its terminal or termination and that no conductor has all strands broken.

The test is made on samples not subjected to any other test.

Modification 4

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1) **For plugs incorporated in a cord set provided with a 2.5 A connector for Class 0 or for Class II appliances, a nominal cross-sectional area of 0.5 mm² is allowed, provided the length of the cord does not exceed 2 m.**

§ 24. MECHANICAL STRENGTH

Sub-clause c

Replace in the fourth line *§ 11b* by *§ 11c.*

Modification 4

§ 26. SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS

Sub-clause a

Replace the test specification, starting from the fourth paragraph, by the following:

When testing terminal screws and nuts, a copper conductor of the largest cross-sectional area shown in the table of § 11c, rigid (solid or stranded) for fixed socket-outlets and flexible in all other cases, is placed in the terminal.

The test is made by means of a suitable test screwdriver or spanner, the torque applied when tightening being equal to that shown in the appropriate column of the following table or in the table of the appropriate figures 38 to 41, whichever is the higher.

Nominal diameter of thread mm	*Torque Nm*				
	I	*II*	*III*	*IV*	*V*
up to and including 2.8	*0.2*	*–*	*0.4*	*0.4*	*–*
over 2.8 up to and including 3.0	*0.25*	*–*	*0.5*	*0.5*	*–*
over 3.0 up to and including 3.2	*0.3*	*–*	*0.6*	*0.6*	*–*
over 3.2 up to and including 3.6	*0.4*	*–*	*0.8*	*0.8*	*–*
over 3.6 up to and including 4.1	*0.7*	*1.2*	*1.2*	*1.2*	*1.2*
over 4.1 up to and including 4.7	*0.8*	*1.2*	*1.8*	*1.8*	*1.8*
over 4.7 up to and including 5.3	*0.8*	*1.4*	*2.0*	*2.0*	*2.0*
over 5.3 up to and including 6.0	*–*	*1.8*	*2.5*	*3.0*	*3.0*
over 6.0 up to and including 8.0	*–*	*2.5*	*3.5*	*6.0*	*4.0*
over 8.0 up to and including 10.0	*–*	*3.5*	*4.0*	*10.0*	*6.0*
over 10.0 up to and including 12.0	*–*	*4.0*	*–*	*–*	*8.0*
over 12.0 up to and including 15.0	*–*	*5.0*	*–*	*–*	*10.0*

The conductor is moved each time the screw or nut is loosened.

Column I applies to screws without heads if the screw, when tightened, does not protrude from the hole, and to other screws which cannot be tightened by means of a screwdriver with a blade wider than the diameter of the screw.

Column II applies to nuts of mantle terminals with cap nuts which are tightened by means of a screwdriver.

Column III applies to other screws which are tightened by means of a screwdriver.

Column IV applies to screws and nuts, other than nuts of mantle terminals, which are tightened by means other than a screwdriver.

Column V applies to nuts of mantle terminals in which the nut is tightened by means other than a screwdriver.

Where a screw has a hexagonal head with means for tightening with a screwdriver and the values in columns III and IV are different, the test is made twice, first applying to the hexagonal head the torque specified in column IV, and then, on another set of accessories, applying the torque specified in column III by means of a screwdriver. If the values in columns III and IV are the same, only the test with the screwdriver is made.
During the test, terminals shall not work loose and there shall be no damage, such as breakage of screws or damage to the head slots, threads, washers or stirrups, that will impair the further use of the screwed connections.

Modification 4

Add the following explanations:

For mantle terminals, the specific nominal diameter is that of the slotted stud.

For mantle terminals in which the nut is tightened by means other than a screwdriver and for which the nominal screw diameter is over 15 mm, the value of the torque is under consideration.

Modification 4

Sub-clause b

Add the following to the requirement:

For plugs and fixed and portable socket-outlets, screws in engagement with a thread of insulating material shall have a diameter of at least 2.5 mm.

Modification 4

Sub-clause c

Add the following explanation:

This requirement does not preclude electrical connections between 2.5 A 250 V plugs and flat twin tinsel cords where the contact pressure is obtained by insulating material having properties such that a reliable and permanent contact is ensured under all conditions of normal use, especially with respect to shrinking, yielding, ageing and cold flow of the insulating material concerned. A test for checking the reliability of connections obtained by penetrating the insulation of tinsel cords, is under consideration.

Modification 4

Sub-clause e

Replace the explanation by the following:

This requirement does not apply to terminals, which must comply with the requirement of § 11h.

For parts of the earthing circuit, other than contact making members, steel is allowed, provided that it is adequately protected against corrosion.

Modification 4

§ 27. CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND

Sub-clause a

Replace in the fourth line of the test specification *§ 11b* by *§ 11c.*

Modification 4

§ 28. RESISTANCE OF INSULATING MATERIAL TO HEAT, FIRE AND TRACKING

Replace this clause by the following (see also Modification 3):

a. Parts of insulating material which might be exposed to thermal stresses due to electric effects, and the deterioration of which might impair the safety of the plug, socket-outlet or mounting box, shall not be unduly affected by heat and fire.

Compliance is checked as follows.
For fixed socket-outlets, parts of insulating material retaining live parts in position are subjected to the glow-wire test of sub-clause b.
If the relevant part withstands this test, the requirement is considered to be met and no further test is necessary.
If the relevant part does not withstand this test, this result is ignored and the complete socket-outlet is subjected to the bad-contact test of sub-clause c.

Enclosures, covers, cover plates and mounting boxes of insulating material are subjected to the flammability and self-extinction test of sub-clause d.

If, however, the samples do not withstand the test of sub-clause c or d, a new set of three samples is subjected to the hot-mandrel test of sub-clause e and the requirement is considered to be met if these samples withstand that test.

In general, parts retaining live parts in position and enclosures, covers, cover plates and mounting boxes are considered to be parts exposed to thermal stresses due to electric effects.

Examples of electric effects are short-circuits and overheating due to loose connections.
Enclosures, covers, cover plates, mounting boxes and small parts, such as washers, are not subjected to the test of sub-clause b.

If the tests specified have to be made at more than one place on the same sample, care is taken to ensure that any deterioration caused by previous tests does not affect the result of the test to be made.
The tests are not made on parts of ceramic material.
A revision of the tests of sub-clauses b to d is under consideration.

b. *The glow-wire test is made, on one sample of each of the parts retaining live parts in position, by means of an apparatus similar to that shown in figure 35a.*

The tip of the glow wire is electrically heated to a temperature of 960 °C and is then applied to the surface to be tested at a place where the section is thinnest, preferably in the centre, the point of application being, however, not more than 15 mm from the upper edge of the sample. The glow wire is kept horizontal and the surface of the sample is held vertical.

The tip of the wire is applied so that it exerts a force of 1 N on the surface of the sample and is kept for 30 seconds in contact with it. The tip is then slowly removed from the sample so as to avoid any movement of air which may affect the results of the test, until it is completely free from the surface.

The relevant part is considered to have withstood the test if, without the part burning away completely:

the length of the flame does not exceed 30 mm while the tip is being pressed against the surface,

any burning extinguishes within 30 seconds after removal of the tip,

the tip does not penetrate into the sample over a distance exceeding 15 mm with respect to the surface, and

no burning drops or glowing particles fall from the sample.

If possible, the tip of the glow wire is applied to flat surfaces and not to grooves, knock-outs, narrow recesses or sharp edges.

Particles of pure silver (99.9% pure, melting point 960 °C) may be used for determining the temperature of the tip.

Care is taken that the test is made in the absence of draughts and that cooling effects are avoided; the test must be made in subdued light so that any flame is visible.

If the moisture content of hygroscopic insulating material influences the test results, the parts are kept, before the test is started, for 7 days (168 hours) in an atmosphere having a relative humidity of 50 ± 5% and a temperature of 23 ± 2 °C.

The apparatus used for this test must be so designed that a force of 1 N is maintained on the sample when the tip of the wire is moved horizontally over a distance of approximately 20 mm. The glow wire is of nickel-chrome (80% Ni and 20% Cr); when forming the wire, care must be taken to avoid fine cracking at the tip.

The current necessary for heating the tip to a temperature of 960 °C is between 120 and 150 A.

c. *The bad-contact test is made, for one sample of fixed socket-outlet, complete with a plug inserted, on those terminals which may be connected during installation.*

If, however, the sample fails, the test is repeated on two further samples, both of which shall then withstand the repeated test.

The socket-outlet is mounted in the most unfavourable position of normal use on a plywood sheet, 5 mm thick. A pine-wood veneer, 1 mm thick and previously stored for 7 days (168 hours) in an atmosphere having a relative humidity of 65 ± 5% and a temperature of 20 ± 2 °C, is placed between the part to be tested and the plywood.

The test is made as described in the Appendix and an amount of heat, within ± 5% equal to the wattage loss shown in the following table, is applied for 30 minutes to the terminal.

Rated current A	Wattage loss W
up to and including 1	4 [1]
over 1 up to and including 2	7 [1]
over 2 up to and including 3	10
over 3 up to and including 4	16
over 4 up to and including 6	20
over 6 up to and including 8	25
over 8 up to and including 10	29
over 10 up to and including 12	32
over 12 up to and including 14	35
over 14 up to and including 16	38
over 16 up to and including 20	40
over 20 up to and including 25	45

1) These values are provisional.

The heat is generated as close as possible to the place where a bad contact is likely to occur.

During the test, there shall be no ignition of insulating material, of the pinewood veneer or of the plywood sheet.

After the test and after the socket-outlet has been allowed to cool down to approximately room temperature, there shall be:

- *no access to live parts which are normally not accessible when the socket-outlet is mounted as in normal use, with or without a plug inserted, even if the standard test finger is applied with a force not exceeding 5 N,*
- *no contact between live parts and accessible metal parts or metal parts connected thereto,*
- *no loosening of live parts such that they can come into contact with accessible metal parts or metal parts connected thereto,*
- *no flashover or breakdown of the insulation, when a d.c. voltage of approximately 500 V is applied for 1 minute between live parts and accessible metal parts.*

If terminals and their supports are symmetrically designed, it will, in general, be sufficient to test only one terminal.

The test is not made on pins and contact tubes of plugs and socket-outlets.

Examples of places where a bad contact is likely to occur are the inside of the hole opposite to the screw of a pillar terminal and the immediate vicinity of the screw of a terminal provided with a clamping plate.

If, during the test, displacement of metal parts might occur due to the action of springs or the like, the latter are mechanically loaded as in normal use.

Care is taken that electric or thermal stresses exerted on parts other than those to be tested, are reduced to the minimum. If a steel-sleeved wire or an FeS-coated wire is used for the test, this may be realized by shunting the relevant circuits within the socket-outlet.

Additional tests are under consideration for so-called self-quenching designs, in which the bad-contact process might be regularly interrupted by melting or foaming of the insulating material when a steel-sleeved wire or an FeS-coated wire is used for the test.

d. *The flammability and self-extinction test is made on the enclosure, cover, cover plate or mounting box.*
The part is placed in the most unfavourable position of normal use.
The test is made on three samples of the relevant part by means of an apparatus similar to that shown in figure 35a and as described in sub-clause b, except that the horizontal movement of the tip is limited to 7 mm.
The tip of the glow wire is electrically heated to a temperature of 650 °C and is then applied to the surface of the sample at the place of minimum thickness, preferably in the centre, but, if possible, at least 15 mm from the upper edge of the sample. The glow wire is kept horizontal and the surface of the sample is held vertical.
The tip is applied so that it exerts a force of 1 N on the surface of the sample and is kept for 15 seconds in contact with it.
The tip is then slowly removed from the sample so as to avoid any movement of air which may affect the results of the test, until it is completely free from the surface.
The sample is considered to have withstood the test if, without the sample burning away completely:
any burning extinguishes within 30 seconds after removal of the tip, and no burning drops or glowing particles fall from the sample.

If more than one sample do not withstand this test, the part is considered not to meet the requirement. If one of the samples does not withstand this test, the test is repeated on three new samples, all of which shall then withstand the repeated test.

For large parts, the test may be made three times on the same sample, but only at places which are not detrimentally affected by the previous tests.

The value of 650 °C is provisional.
The temperature of the tip of the glow wire may be determined by means of a thermocouple.

e. External parts of insulating material shall be resistant to abnormal heat and to fire.

Compliance is checked by a test made with an electrically heated conical mandrel in an apparatus as shown in figure 36.

The mandrel is inserted into a conical hole reamed in the part to be tested such a way that portions of the conical part of the mandrel of equal leng protrude from both sides. The sample is pressed against the mandrel with force of 12 N. When testing parts for which the prescribed mandrel temper ture is 300 °C, the means by which the force is applied is locked to prevei any further movement. However, if the sample starts to soften or to me during the test, a force just sufficient to keep the sample in contact with th mandrel is applied to the sample in the horizontal direction.

The mandrel is heated to the following temperature in approximately 3 minute
500 °C for external parts of fixed socket-outlets, which support live part

300 °C for other external parts.
The temperature is maintained within 10 °C of this value for 2 minutes and measured by means of a thermocouple inside the mandrel where it is in contac with the sample.
During the period of 5 minutes, sparks of about 6 mm in length are produce at the upper surface of the sample where the mandrel protrudes and the sampl is in contact with the mandrel. The sparks are produced by means of a high frequency generator, the electrodes of which are moved around the mandrel s as to cover the whole area of the sample near the mandrel.

Gases produced during the heating shall not be ignited by the sparks.

During the test at 500 °C, the samples shall not move on the mandrel by mor than 2 mm.

The test is not made on parts of ceramic material.
For the purpose of this test, bases of ordinary fixed socket-outlets are considered t be external parts.
Provisionally, external parts of rubber or thermoplastic material of non-rewirabl accessories are not subjected to the test.
A revision of this test is under consideration.

f. Insulating parts supporting, or in contact with, live parts of splash-proof and jet-proof accessories shall be of material resistant to tracking.

For materials other than ceramic, compliance is checked by the following test.

A flat surface of the part to be tested, if possible at least 15 mm x 15 mm, is placed in the horizontal position.
Two electrodes of platinum or other sufficiently non-corrodible material, with the dimensions shown in figure 37, are placed on the surface of the sample in the manner shown in this figure, so that the rounded edges are in contact with the sample over their whole length.
The force exerted on the surface by each electrode is about 1 N.

The electrodes are connected to a 50 c/s supply such that the no-load voltage i of substantially sine-wave form and has a value of 175 V, which shall not b reduced by more than 17.5 V when the electrodes are short-circuited. The tota impedance of the circuit when the electrodes are short-circuited is adjusted by means of a variable resistor, so that the current is equal to 1.0 ± 0.1 A with a power factor between 0.9 and 1. An overcurrent relay is included in the circuit, the relay being so designed that, when the current has reached a value of 0.5 A, the circuit is interrupted after a period which is as short as possible but not less than 2 seconds.

The surface of the sample is wetted by allowing drops of a solution of ammonium chloride in distilled water to fall centrally between the electrodes. The solution has a volume resistivity of 400 Ωcm at 25 °C, corresponding to a concentration of about 0.1%. The drops have a volume of 20 $^{+5}_{-0}$ mm^3 and fall from a height of 30 to 40 mm.

The time interval between one drop and the next is 30 ± 5 seconds.

No flashover or breakdown between electrodes shall occur before a total of 50 drops has fallen.

Care is taken that the electrodes are clean, correctly shaped and correctly positioned before each test is started.

In case of doubt, the test is repeated, if necessary on a new set of samples.

A revision of this test is under consideration.

Modification 4

STANDARD SHEET I

Ad the following to note 1 (see Modification 1):

Any bevelling of the entry holes shall be such that the depth of the bevel
not exceed:

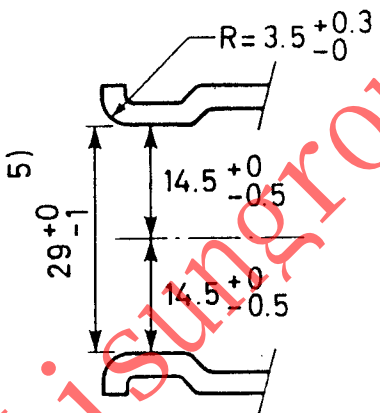
1.2 mm when measured in the plane through the axes of both entry h
at the outer sides of the holes,

2.0 mm when measured at other places.

Modificati

STANDARD SHEET III

Replace the figure giving details of the earthing contacts by the following:



Modificatio

FIGURE 15

Replace the last paragraph by the following (see Modification 1):

It shall not be possible to insert plugs without earthing contact, other th
those for Class II appliances, into the gauge.

Modificatio

Insert the figures 19a, 35a and 38 to 41 inclusive.

Modificatio

Insérer la figure suivante:
Insert the following figure:

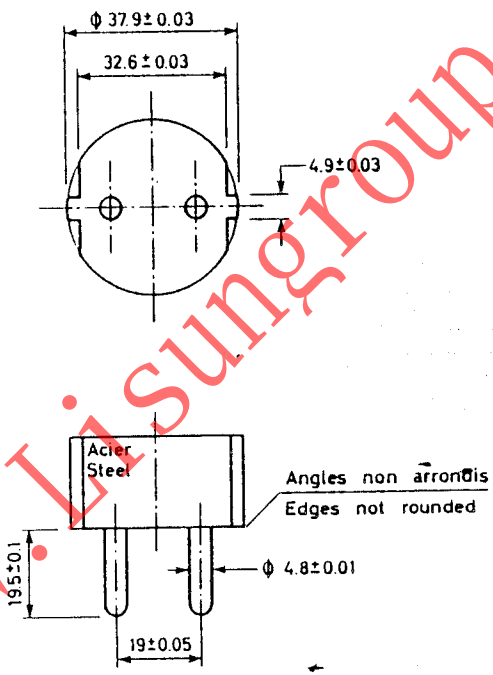


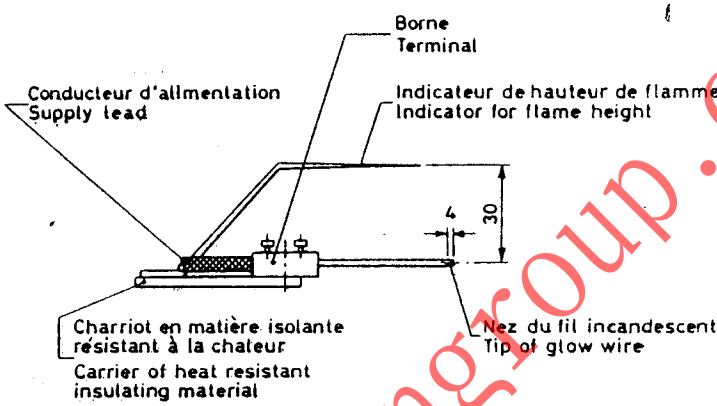
Fig. 19a

Fiche pour essayer les contacts latéraux de terre

Plug for testing side earthing contacts

Modification 4

Insérer la figure suivante:
Insert the following figure:



DIMENSIONS EN mm

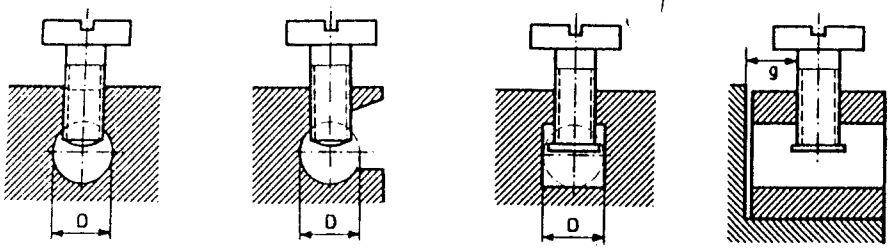
DIMENSIONS IN mm

Fig. 35a

Appareil pour l'essai au fil incandescent

Apparatus for glow-wire test

Modification 4



Bornes sans plaquette
Terminals without pressure plate

Bornes avec plaquette
Terminals with pressure plate

Taille de la borne Terminal size	Diamètre minimal D du logement du conducteur Minimum diameter D of conductor space mm	Distance minimale g entre la vis de serrage et l'extrémité du conducteur poussé à fond Minimum distance g between clamping screw and end of conductor when fully inserted mm		Couple de torsion Torque Nm					
				I[1])		III[1])		IV[1])	
		une vis one screw	deux vis two screws	une vis one screw	deux vis two screws	une vis one screw	deux vis two screws	une vis one screw	deux vis two screws
1	2.5	1.5	1.5	0.2	0.2	0.4	0.4	0.4	0.4
2	3.0	1.5	1.5	0.25	0.2	0.5	0.4	0.5	0.4
3	3.6	1.8	1.5	0.4	0.2	0.8	0.4	0.8	0.4
4	4.0	1.8	1.5	0.4	0.25	0.8	0.5	0.8	0.5
5	4.5	2.0	1.5	0.7	0.25	1.2	0.5	1.2	0.5

[1]) Les valeurs spécifiées s'appliquent aux vis faisant l'objet des colonnes correspondantes du tableau du § 26a.

[1]) The values specified apply to the screws covered by the corresponding columns in the table of § 26a.

Fig. 38

Bornes à trou

Pillar terminals

La partie de la borne portant le trou taraudé et la partie de la borne contre laquelle l'âme est serrée par la vis peuvent être deux parties distinctes, comme dans le cas d'une borne à étrier.

La forme du logement du conducteur peut différer de celles qui sont représentées, pourvu qu'on puisse y inscrire un cercle de diamètre égal à la valeur minimale spécifiée pour D.

The part of the terminal containing the threaded hole and the part of the terminal against which the conductor is clamped by the screw may be two separate parts, as in the case of a terminal provided with a stirrup.

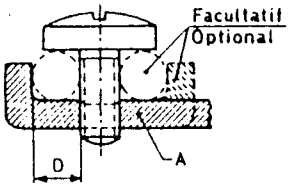
The shape of the conductor space may differ from those shown, provided a circle with a diameter equal to the minimum value specified for D can be inscribed.

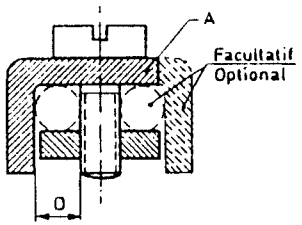
Fig. 38

Suite

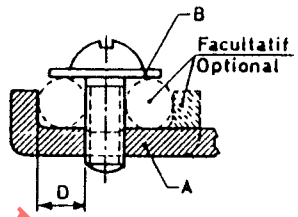
Continuation

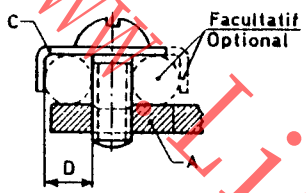
Modification 4





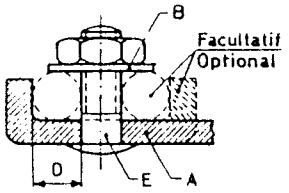
Vis ne nécessitant pas de rondelle ou plaquette
Screw not requiring washer or clamping plate

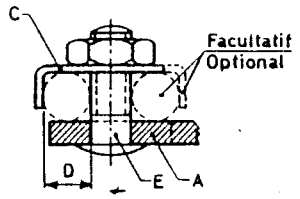




Vis nécessitant une rondelle ou plaquette
Screw requiring washer or clamping plate

Bornes à serrage sous tête de vis
Screw terminals





Bornes à goujon fileté
Stud terminals

Fig. 39

Bornes à serrage sous tête de vis et bornes à goujon fileté.

Screw terminals and stud terminals

A Partie fixe
B Rondelle ou plaquette
C Dispositif empêchant le conducteur ou ses brins de s'échapper
D Logement du conducteur
E Goujon

A Fixed part
B Washer or clamping plate
C Anti-spread device
D Conductor space
E Stud

Taille de la borne Terminal size	Diamètre minimal du logement du conducteur Minimum diameter of conductor space mm	Couple de torsion Torque Nm			
		III[1])		IV[1])	
		une vis ou un goujon one screw or stud	deux vis ou deux goujons two screws or studs	une vis ou un goujon one screw or stud	deux vis ou deux goujons two screws or studs
0	1.4	0.4	–	0.4	–
1	1.7	0.5	–	0.5	–
2	2.0	0.8	–	0.8	–
3	2.7	1.2	0.5	1.2	0.5
4	3.6	2.0	1.2	2.0	1.2
5	4.3	2.0	1.2	2.0	1.2

[1]) Les valeurs spécifiées s'appliquent aux vis ou écrous faisant l'objet des colonnes correspondantes du tableau du § 26a.

[1]) The values specified apply to the screws or nuts covered by the corresponding columns in the table of § 26a.

La partie maintenant l'âme en place peut être en matière isolante, pourvu que la pression nécessaire pour le serrage de l'âme ne se transmette pas par l'intermédiaire de la matière isolante.

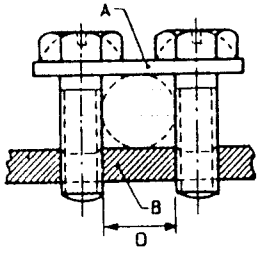
The part which retains the conductor in position may be of insulating material, provided the pressure necessary to clamp the conductor is not transmitted through the insulating material.

Fig. 39

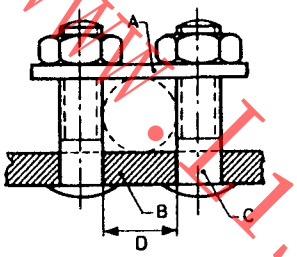
Suite

Continuation

Modification 4



A Plaquette
B Partie fixe
C Goujon
D Logement du conducteur



A Saddle
B Fixed part
C Stud
D Conductor space

Taille de la borne Terminal size	Diamètre minimal du logement du conducteur Minimum diameter of conductor space mm	Couple de torsion Torque Nm
3	3.0	0.5
4	4.0	0.8
5	4.5	1.2

Fig. 40

Bornes à plaquette — Saddle terminals

La forme de la section droite du logement du conducteur peut différer de celle qui est représentée, pourvu qu'on puisse y inscrire un cercle de diamètre égal à la valeur minimale spécifiée.

Les deux faces de la plaquette peuvent être de forme différente pour loger soit des âmes de petite section soit des âmes de forte section, par retournement de la plaquette.

Les bornes peuvent avoir plus de deux vis ou goujons de serrage.

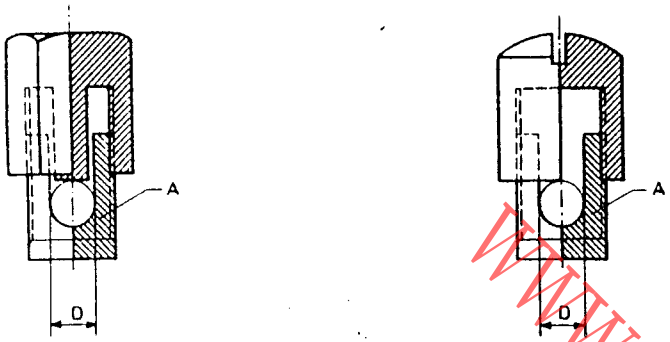
The shape of the section of the conductor space may differ from that shown, provided a circle with a diameter equal to the minimum value specified can be inscribed.

The two faces of the saddle may be of different shapes to accommodate conductors of either small or large cross-sectional area, by inverting the saddle.

The terminals may have more than two clamping screws or studs.

Fig. 40

Suite — Continuation



A Partie fixe
D Logement du conducteur

A Fixed part
D Conductor space

Taille de la borne Terminal size	Diamètre minimal du logement du conducteur[1]) Minimum diameter of conductor space[1]) mm	Distance minimale entre la partie fixe et l'extrémité du conducteur poussé à fond Minimum distance between fixed part and end of conductor when fully inserted mm
1	1.7	1.5
2	2.0	1.5
3	2.7	1.8
4	3.6	1.8
5	4.3	2.0

[1]) La valeur du couple de torsion à appliquer est celle spécifiée dans la colonne II ou V du tableau du § 26a, suivant le cas.

[1]) The value of the torque to be applied is that specified in column II or V of the table of § 26a, as appropriate.

Fig. 41

Bornes à capot taraudé — Mantle terminals

Le fond du logement du conducteur doit être légèrement arrondi de façon à obtenir une connexion sûre.

The bottom of the conductor space must be slightly rounded in order to obtain a reliable connection.

Fig. 41

Suite — Continuation

Modification 4

Add the following:

APPENDIX

BAD-CONTACT TEST

The thermal stresses simulating the effect of a glowing bad contact within a fixed socket-outlet can be produced either:

by artificial formation of a bad contact, as described in items 1 to 3, or

by producing the specified amount of heat on the part to be tested by means of a test heater, as described in item 4.

1. Bad-contact test with artificial formation of a bad contact

A bad contact can be produced artificially by transmitting a current, by means of a steel-sleeved wire or an FeS-coated wire, to the relevant terminal; for stabilizing the glowing process, a high-reactance transformer having a characteristic as shown in figure A 1 is used as the supply source.

Starting of the glowing process is facilitated by connecting an adjustable resistor of approximately 2 Ω in parallel with the bad contact, this resistance being first short-circuited and then slowly inserted in the circuit over a period of 1 minute from switching on the supply.
After 3 minutes, the wattage loss in the bad contact is sufficiently stable to be measured by means of an ammeter and an electronic voltmeter which must be suitable for measuring voltages up to approximately 10 V, but should be insensitive to higher transient voltages caused by the glowing process.

The high-reactance transformer must have an output open-circuit voltage of approximately 60 V, a characteristic similar to that shown in figure A 1 and must be so designed that the output current is high enough to obtain the wattage loss specified for the relevant test.
Transformers of this type are commonly used for neon lighting; the output winding must, however, be replaced by a low-voltage winding.

An electronic device for automatic control and stabilization of the glowing process is under consideration.

2. Preparation of test wires

The steel-sleeved wire is prepared by squeezing a piece of thin-walled steel tube lightly on to the end of a solid copper wire having a cross-sectional area equal to the median value of the range specified in § 11b. The tube is approximately 5 mm long, its inner diameter being approximately 0.1 mm larger than the actual diameter of the copper wire and the wall thickness being approximately 0.3 mm.

The FeS-coated wire is prepared as follows.
The end of a solid copper wire, having a cross-sectional area equal to the median value of the range specified in § 11b, is cleaned over a length of approximately 15 mm by means of a fine abrasive mixed with some detergent, and then it is rinsed in water.
Immediately afterwards, the end of the wire is dipped into a uniform mixture of one part of sulphur powder and two parts of iron powder by mass, the iron powder having a granulation between 0.05 and 0.15 mm.
On withdrawal from the mixture, the end of the wire should be covered uniformly by the powder; it is then held in the hottest part of the flame of a Bunsen burner so that the mixture will form a strong coating of FeS in good contact with the wire. The thickness of the coating shall be between 0.3 and 0.5 mm.

The iron powder specified can be obtained commercially from pharmaceutical suppliers as "ferrum pulveratum purum". Other iron powders, such as "ferrum reductum", "carbonyl iron" or "ferrum granulatum pro analysi", are not suitable for this test, because they are either too fine or too coarse.

3. Application of test wire

The test wire is arranged so that its prepared end touches the part to be tested with just sufficient pressure to obtain the minimum electric contact necessary to initiate the glowing process. If all conditions specified are fulfilled, the glowing process will start immediately after the full value of the test current has been reached.

Care is taken that vibrations and other external influences do not disturb the glowing process; if, however, the glowing process is interrupted accidentally, it can normally be restarted by tapping the apparatus lightly.
As FeS reacts with the moisture in the air, freshly coated wires must be used for each test.
In order to position the test wire and to observe the glowing process, a part of a cover or cover plate may be removed, but removal of such a part must not influence the results of the test.
During the tests, the current necessary to produce the specified wattage loss may exceed the rated current of the fixed socket-outlet. As the test current must be passed only through the parts to be tested, it may be necessary to shunt other parts.

4. Bad-contact test with test heater

Instead of the steel-sleeved wire or the FeS-coated wire, a test heater may be used to generate an amount of heat equivalent to the specified wattage loss in the terminal.

The test heater comprises a short length of resistance wire of an alloy with 60% nickel, 16% chromium and 24% iron, or an alloy having similar properties.

The wire is insulated with the hardest possible oxide coating, and has the appropriate diameter and length specified in the following table.

Size of test heater	Wattage loss W	Length l (tol. ±1) mm	Diameter d mm	Voltage (approximately) V	Current (approximately) A	Cross-sectional area of braid mm^2
1	0 to 20	14	0.55	2.3	9	1.0
2	20 to 26	16	0.65	1.8	12	1.5
3	26 to 32	19	0.80	1.5	20	2.5
4	32 to 40	22	0.90	1.4	25	2.5
5	40 to 45	25	1.00	1.3	32	2.5

A copper braid, approximately 120 mm long and having a cross-sectional area as shown in the table, is attached to each end of the test heater.
The means of attachment must be such that the voltage drop at each junction is negligible; a suitable attachment is obtained by crimping and then by silver solder brazing.
After the attachment of the braid, the test heater is formed so that it can be easily inserted into the terminal to be tested, and is arranged so that the maximum amount of heat generated is transferred to this terminal.
The test heater is inserted into the terminal to be tested, together with a solid copper conductor of the minimum cross-sectional area specified in § 11b and having a length of at least 0.5 m.
Screws or other clamping means of terminals are only tightened loosely to prevent the test heater or the copper conductor from coming out during the test and to ensure that the oxide film of the test heater is not broken.

The test heater is then energized by a low-voltage transformer adjusted so that the specified wattage loss is obtained.

Suitable shapes of the test heater are shown in figure A 2.
Care is taken to ensure that no strands of the copper braid break during attachment and that, when forming the wire, cracking does not occur.

Modification 4

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MODIFICATIONS TO THE SECOND EDITION OF THE SPECIFICATION FOR PLUGS AND SOCKET-OUTLETS FOR DOMESTIC AND SIMILAR PURPOSES

§ 22. FORCE NECESSARY TO WITHDRAW THE PLUG

Insert the following after the third paragraph of the test specification:

For measuring the maximum withdrawal force, the test plug has pins of the maximum size shown in the table and, for 10/16 A 250 V socket-outlets with side earthing-contacts, the distance between the earthing contacts is $32{\cdot}5\ ^{+0}_{-0{\cdot}1}$ *mm.*

For measuring the minimum withdrawal force, the test plug has pins of the minimum size shown in the table and, for 10/16 A 250 V socket-outlets with side earthing-contacts, the distance between the earthing contacts is $32{\cdot}0\ ^{+0{\cdot}1}_{-0}$ *mm.*

Modification 3

§ 24. MECHANICAL STRENGTH

Sub-clause f

Replace this sub-clause by the following:

f. The samples are subjected to a pressure test by means of a steel plate to which a force of 300 N is applied vertically, the temperature of the supporting base, of the samples and of the pressure plate being 20 ± 2 °C.

Portable socket-outlets are placed in the position shown in figure 32a and the force is applied for 1 minute.

Plugs are first placed in the position shown in figure 32a and the force is applied for 1 minute. If it is possible to maintain the plugs in the position shown in figure 32b without applying any additional force, they are then tested in this position, the force being applied for 1 minute; otherwise, the latter test is not made.

After the test, the samples shall show no damage within the meaning of this specification.

Modification 3

§ 25. RESISTANCE TO HEAT AND AGEING

Sub-clause c

Replace the last paragraph by the following:

After 1 hour, the ball is removed from the sample which is then cooled down, within 10 seconds, to approximately room temperature by immersion in cold water.

The diameter of the impression caused by the ball is measured and shall not exceed 2 mm.

Modification 3

§ 28. RESISTANCE OF INSULATING MATERIAL TO HEAT, FIRE AND TRACKING

Sub-clause a

Add the following sentence to the second paragraph of the test specification:

However, if the sample starts to soften or to melt during the test, a force just sufficient to keep the sample in contact with the mandrel is applied to the sample in the horizontal direction.

Modification 3

Replace the fifth paragraph of the test specification by the following:

During the period of 5 minutes, sparks of about 6 mm in length are produced at the upper surface of the sample where the mandrel protrudes and the sample is in contact with the mandrel. The sparks are produced by means of a high-frequency generator, the electrodes of which are moved around the mandrel so as to cover the whole area of the sample near the mandrel.

Modification 3

Sub-clause b

Replace the fifth paragraph of the test specification by the following:

The electrodes are connected to a 50 c/s supply such that the no-load

voltage is of substantially sine-wave form and has a value of 175 V, which shall not be reduced by more than 17·5 V when the electrodes are short-circuited. The total impedance of the circuit when the electrodes are short-circuited is adjusted by means of a variable resistor, so that the current is equal to 1·0 ± 0·1 A with a power factor between 0·9 and 1. An overcurrent relay is included in the circuit, the relay being so designed that, when the current has reached a value of 0·5 A, the circuit is interrupted after a period which is as short as possible but not less than 2 seconds.

Modification 3

COMMISSION INTERNATIONALE
DE REGLEMENTATION
EN VUE DE L'APPROBATION
DE
L'EQUIPEMENT ELECTRIQUE

INTERNATIONAL COMMISSION
ON RULES
FOR THE APPROVAL
OF
ELECTRICAL EQUIPMENT

CEE

SPECIFICATIONS
POUR LES

PRISES DE COURANT

POUR
USAGES DOMESTIQUES ET
ANALOGUES

SPECIFICATION
FOR

PLUGS AND SOCKET-OUTLETS

FOR
DOMESTIC AND
SIMILAR PURPOSES

PUBLICATION 7

Deuxième Edition Second Edition

MODIFICATION 2

OCTOBRE 1973 OCTOBER

Publié Juin 1974 June Published

MODIFICATIONS TO THE SECOND EDITION OF THE SPECIFICATION FOR PLUGS AND SOCKET-OUTLETS FOR DOMESTIC AND SIMILAR PURPOSES

§ 11. TERMINALS

Sub-clause i

Replace the test specification and the explanation by the following:

Compliance is checked by inspection and, where the risk of accidental connection between live parts and accessible metal parts is concerned, by the following test.

An 8 mm length of insulation is removed from the end of a flexible conductor having the minimum nominal cross-sectional area specified in sub-clause b. One wire of the stranded conductor is left free and the other wires are fully inserted as in normal use into, and clamped in, the terminal.

The free wire is bent, without tearing the insulation back, in every possible direction, but without making sharp bends round barriers.

The free wire of a conductor connected to a live terminal shall not touch any metal part which is accessible or is connected to an accessible metal part, and shall not escape from the enclosure.

The free wire of a conductor connected to the earthing terminal shall not touch any live part.

If necessary, the test is repeated with the free wire in another position.

The prescription that sharp bends should not be made round barriers does not imply that the free wire must be kept straight; sharp bends are made if these are likely to occur when connecting up the accessory.

The requirements of sub-clauses b to i do not apply to non-rewirable accessories.

Modification 2

Add the following sub-clause:

j. **Plugs and portable socket-outlets shall be so designed that terminal screws or nuts cannot become loose and fall out of position in such a way that they establish an electrical**

connection between live parts and the earthing terminal or metal parts connected to the earthing terminal.

Compliance is checked by inspection during the test of sub-clause b.

Modification 2

§ 13. CONSTRUCTION OF PLUGS AND PORTABLE SOCKET-OUTLETS

Sub-clause f

Replace the second sentence of the requirement by the following:

The construction shall be such that the conductors can be properly connected and that, when the accessory is mounted and wired as in normal use, there is no risk that:

the cores are pressed against each other,

a core, the conductor of which is connected to a live terminal, comes into contact with accessible metal parts,

a core, the conductor of which is connected to the earthing terminal, comes into contact with live parts.

Modification 2

§ 19. TEMPERATURE RISE

Replace the table and the preceding paragraph of the text on page 73 by the following (see also Modification 1):

The plug is inserted into the socket-outlet and an alternating current is passed for 1 hour through the poles, but not through the earthing-circuit.

For rewirable accessories, the test current is:

22 A if the rated current does not exceed 16 A,

35 A if the rated current exceeds 16 A.

For non-rewirable plugs, other than plugs having a rated current of 2·5 A, the test current is the same, unless in the table on page 7 a smaller test current is specified for the nominal cross-sectional area of the flexible cable or cord fitted, in which case this current is passed; for 2·5 A plugs, the test current is 4 A, unless in the following table a smaller test current is specified for the nominal cross-sectional area of the flexible cable or cord fitted.

Nominal cross-sectional area mm^2	*Test current* *A*
Flat twin tinsel cord	*1*
0·5	*2·5*
0·75	*10*
1	*12*
1·5	*16*
2·5	*25*

For accessories provided with an earthing terminal, the test is repeated with the test current flowing through all poles but one, and the earthing circuit.

For non-rewirable portable socket-outlets, the test current is under consideration.

Modification 2

§ 21. NORMAL OPERATION

Replace the last paragraph of the test specification by the following:

The samples shall then comply with the requirements of § 19, the test current being, however, equal to the rated current or, for non-rewirable plugs, the test current specified in the table of § 19 for the relevant nominal cross-sectional area if this current is smaller.

Moreover, the samples shall withstand an electric strength test as specified in § 17c, the test voltage being, however, reduced to 1500 V.

Modification 2

FIGURE 16

Replace the diameter $5\ ^{+\ 0.1}_{-\ 0}$ for the end of the pins by $2.5\ ^{+\ 0.1}_{-\ 0}$ (see Modification 1).

Modification 2

MODIFICATIONS TO THE SECOND EDITION OF THE SPECIFICATION FOR PLUGS AND SOCKET-OUTLETS FOR DOMESTIC AND SIMILAR PURPOSES

§ 4. GENERAL NOTES ON TESTS

Sub-clause f

Replace this sub-clause by the following:

f. Three samples are subjected to all the tests, with the exception of that of § 25e and, for non-rewirable accessories, those of § 23, sub-clauses d and e. For the test of § 23d, if applicable, and for each of the tests of §§ 23e and 25e, three additional samples are required.

Modification 1

§ 9. PROTECTION AGAINST ELECTRIC SHOCK

Sub-clause a

Add the following explanation:

The standard test finger must be so designed that each of the jointed sections can be turned through an angle of 90° with respect to the axis of the finger in the same direction only.

Modification 1

§ 16. MOISTURE RESISTANCE

Sub-clause b

Replace the fourth and fifth paragraphs of the test specification by the following:

The humidity treatment is carried out in a humidity cabinet containing air with a relative humidity maintained between 91 and 95%. The temperature of the air, at all places where samples can be located, is maintained within ± 1 °C of any convenient value t between 20 and 30 °C.

Before being placed in the humidity cabinet, the samples are brought to a temperature between t and t + 4 °C.

Modification 1

Replace the first paragraph of the explanation by the following:

In most cases, the samples may be brought to the temperature specified, by keeping them at this temperature for at least 4 hours before the humidity treatment.

Modification 1

§ 17. INSULATION RESISTANCE AND ELECTRIC STRENGTH

Sub-clause c

Add the following explanations:

The high-voltage transformer used for the test must be so designed that, when the output terminals are short-circuited after the output voltage has been adjusted to the appropriate test voltage, the output current is at least 200 mA.

The overcurrent relay must not trip when the output current is less than 100 mA.

Care is taken that the r.m.s. value of the test voltage applied is measured within ± 3%.

Modification 1

§ 18. OPERATION OF EARTHING CONTACTS

Delete the 17 th up to and including 24 th lines from page 71.

Modification 1

§ 19. TEMPERATURE RISE

Replace the paragraph immediately preceding the table by the following:

The plug is inserted into the socket-outlet, and an alternating current of the value shown in the following table is passed for 1 hour through all poles, and then for 1 hour through one pole and the earthing circuit, if any.

Modification 1

§ 21. NORMAL OPERATION

Add the following to the test specification:

The side earthing-contacts, if any, are then separated to the maximum distance possible, but by not more than 35 mm; they are held in this position for 48 hours.
The force exerted is measured as described in § 18.
The sum of the forces for each contact shall not be less than 60% of the value measured during the test of § 18. The force exerted by each contact shall, however, not be less than 5 N.

Modification 1

§ 23. FLEXIBLE CABLES AND CORDS AND THEIR CONNECTION

Sub-clause d
Add the following explanation:

For non-rewirable accessories, the test is made on samples not subjected to any other test.

Modification 1

Sub-clause e
Add the following explanation:

The test is made on samples not subjected to any other test.

Modification 1

§ 25. RESISTANCE TO HEAT AND AGEING

Sub-clause e
Replace the first paragraph of the explanations by the following:

The test is made on samples not subjected to any other test.

Modification 1

STANDARD SHEET I

Replace note 1 by the following:

[1]) Tolerance + 0·3 mm for moulded material and + 0·5 mm for ceramic material and rubber.

Modification 1

STANDARD SHEET II

Replace the dimension of ⌀ 36.5 ± 0.5 [1]) for the diameter of the engagement face of the plug by ⌀ $36.5\ ^{+1.3}_{-0.5}$ [1]).

Modification 1

STANDARD SHEET III

Replace the dimension $33.5\ ^{+0}_{-0.5}$ for the distance between the ridges by $33.5\ ^{+0}_{-0.8}$ [6]).

Modification 1

Replace note 1 by the following:

[1]) Tolerance + 0·3 mm for moulded material and + 0·5 mm for ceramic material and rubber.

Modification 1

Add the following note on page 129:

[6]) The dimensions and the shape of the ridges shall be such that a plug complying with Standard Sheet XVI and having the largest permissible dimensions, can be easily introduced by hand into the socket-outlet.

Modification 1

STANDARD SHEET V

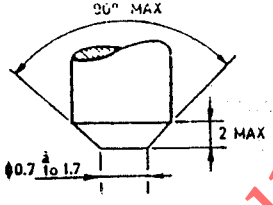
Replace note 1 by the following:

1) Tolerance ± 0·3 mm for moulded material and ± 0·5 mm for ceramic material and rubber.

Modification 1

STANDARD SHEET XVI

Add the following sketch:



Alternative for end of pins

Modification 1

Replace on page 155 item A by the following:

A. Insulating collar, required for flat plugs only.

Modification 1

Replace on page 155 the fifth paragraph from below by the following:

Pins with insulating collar shall be solid; their ends shall be rounded, or conical as shown in detail sketch.

Modification 1

STANDARD SHEET XVIII

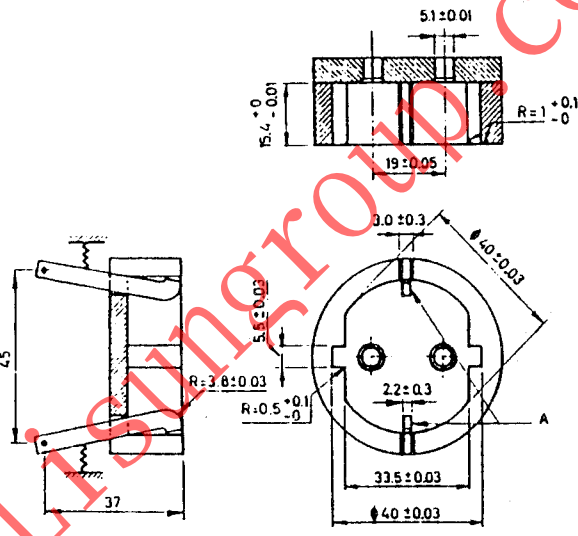
Replace the diameter ø 3.5 [2]) of the fixing screw by ø 3 [2]).

Modification 1

FIGURE 15

Remplacer cette figure par la suivante:
Replace this figure by the following:

FICHES BIPOLAIRES 10/16 A 250 V SANS CONTACT DE TERRE	Fig. 15	10/16 A 250 V TWO-POLE PLUGS WITHOUT EARTHING CONTACT
CALIBRE POUR L'ININTERCHANGEABILITE AVEC LES FICHES BIPOLAIRES AVEC CONTACT DE TERRE		GAUGE FOR NON-INTERCHANGEABILITY WITH TWO-POLE PLUGS WITH EARTHING CONTACT



A. Contacts de terre mobiles.
La distance entre les contacts de terre en position de repos est de 29 ± 0,01 mm. Lorsque les contacts de terre sont ouverts à une distance de 32 mm, la force exercée par chaque contact est de 5 N.

DIMENSIONS EN mm

Il ne doit pas être possible d'introduire les fiches sans contact de terre dans le calibre.

A. Movable earthing contacts.
The distance between the earthing contacts in the rest position is 29 ± 0·01 mm. When the earthing contacts are separated at a distance of 32 mm, the force exerted by each contact is 5 N.

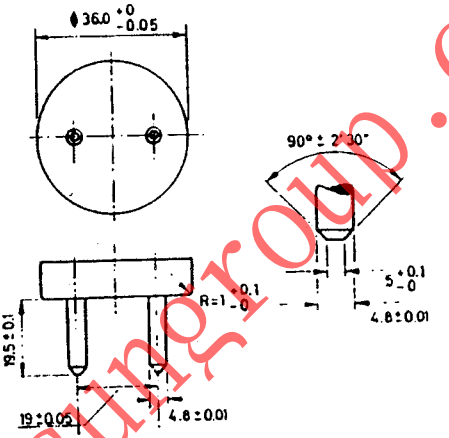
DIMENSIONS IN mm

It shall not be possible to insert plugs without earthing contact into the gauge.

Modification 1

FIGURE 16

Remplacer les dessins par les suivants:
Replace the sketches by the following:



Modification 1

COMMISSION INTERNATIONALE
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PUBLICATION 7

Deuxième Edition – Second Edition

MAI MAY

1963

INTRODUCTION

The International Commission on Rules for the Approval of Electrical Equipment (abbreviated to CEE) is composed of organizations in European countries, which, in the interest of the public, especially with regard to safety, issue rules and regulations for electrical equipment (cables and flexible cords, accessories and appliances) and check compliance therewith as far as such checking takes place.

CEE Specifications are mainly concerned with safety requirements and, while not formally binding on member organizations, the appropriate authorities in their countries are strongly recommended to adopt the CEE Specifications as far as practicable.

Owing to special circumstances, however, some member organizations will not be able to accept all the requirements of these Specifications.

The CEE Specifications are in force in any country only in respect of those items of equipment for which the corresponding national specifications of that country are in agreement with, or are accepted as equivalent to those CEE Specifications.

At the date of issue of this publication, member organizations exist in the following countries: Austria, Belgium, Czechoslovakia, Denmark, Federal Republic of Germany, Finland, France, Greece, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Sweden, Switzerland, United Kingdom and Yugoslavia.

Further information is given in CEE Publication 8, which describes the Aim, Structure and Results of the CEE and gives the addresses of the member organizations, from whom copies of CEE publications may be obtained.

EXPLANATORY NOTES

Different printing types are used in order to distinguish:

the requirements,

the test specifications,

the explanations.

This specification makes reference to the following CEE Publications:

Publication 2, Specification for Rubber Insulated Cables and Flexible Cords,
Publication 13, Specification for Polyvinyl Chloride Insulated Cables and Flexible Cords,
Publication 22, Specification for Appliance Couplers for Domestic and Similar General Purposes.

The Giorgi system of units is used throughout this specification. In this system, the newton (symbol N) is the unit of force; 1 newton is approximately equal to 0·102 kilogramme-force.

§ 1. SCOPE

This specification applies to plugs and socket-outlets and to cable couplers, with and without earthing contact, with a rated voltage not exceeding 380 V and a rated current not exceeding 25 A, intended for domestic and similar general purposes, either indoors or outdoors. It also applies to mounting boxes for flush-type socket-outlets.

This specification applies, as far as is reasonable, to single-way socket-outlet adaptors intended to allow a connection to be made between plugs not complying with the Standard Sheets and socket-outlets complying with the Standard Sheets, provided that the safety requirements of this specification are met.

This specification applies to plugs incorporated in cord sets and to plugs and portable socket-outlets incorporated in cord extension sets. It also applies to plugs which are a component of an appliance, unless otherwise stated in the specification for the relevant appliance.

This specification does not apply to:

plugs and socket-outlets and cable couplers for extra-low voltage,

appliance couplers,

fixed socket-outlets combined with fuses, automatic switches, etc.,

plugs and socket-outlets of groups A and B of IEC Publication 83.

Plugs and socket-outlets and cable couplers complying with this specification are suitable for use at ambient temperatures not normally exceeding 25° C, but occasionally reaching 35 °C.

In locations where special conditions prevail, as in ships, vehicles and the like, and in hazardous locations, for example, where explosions are liable to occur, special constructions may be required.

Requirements for plugs and socket-outlets and cable couplers for extra-low voltage are under consideration.

It follows from this specification that multiway adaptors are not allowed.

§ 2. DEFINITIONS

a. Where the terms voltage and current are used, they imply the r.m.s. values, unless otherwise specified.

b. The following definitions apply for the purpose of this specification.

1. A **plug and socket-outlet** is a means enabling the connection at will, of a flexible cable or cord, to fixed wiring. It consists of two parts:

   a **fixed socket-outlet**, which is the part intended to be installed with the fixed wiring;

   a **plug**, which is the part integral with, or intended to be attached to, the flexible cable or cord connected to an appliance or to a portable socket-outlet.

2. A **cable coupler** is a means enabling the connection at will, of two flexible cables or cords. It consists of two parts:

   a **portable socket-outlet**, which is the part integral with, or intended to be attached to, a flexible cable or cord;

   a **plug**, which is the part integral with, or intended to be attached to, the flexible cable or cord connected to an appliance or to a portable socket-outlet

   The plug of a cable coupler is identical to the plug of a "plug and socket-outlet". A portable socket-outlet has the same contact arrangement as a fixed socket-outlet.

3. A **multiple socket-outlet** is an accessory incorporating more than one socket-outlet.

4. A **rewirable** plug or portable socket-outlet is an accessory so constructed that the flexible cable or cord can be replaced.

5. A **non-rewirable** plug or portable socket-outlet is an accessory so constructed that the flexible cable or cord cannot be separated from the accessory without making it permanently useless.

6. A **cord set** is an assembly consisting of a flexible cable or cord complete with a non-rewirable plug and a non-rewirable connector.

7. A **cord extension set** is an assembly consisting of a flexible cable or cord complete with a non-rewirable plug and a non-rewirable portable socket-outlet.

8. **Rated voltage**: denotes the voltage (for three-phase supply, the line voltage) assigned to the plug or the socket-outlet by the maker.

9. **Rated current** denotes the current assigned to the plug or the socket-outlet by the maker.

c. The term "accessory" is used as a general term covering plugs and socket-outlets.

Throughout this specification, the term "socket-outlet" covers both fixed and portable socket-outlets, except where the reference is specific to one type or the other.

§ 3. GENERAL REQUIREMENT

Accessories shall be so designed and constructed that in normal use their performance is reliable and without danger to the user or surroundings.

In general, compliance is checked by carrying out all the tests specified.

§ 4. GENERAL NOTES ON TESTS

a. Tests according to this specification are type tests.

b. Unless otherwise specified, the samples are tested as delivered and under normal conditions of use, at an ambient temperature of 20 ± 5 °C.
Non-rewirable accessories other than those incorporated in a cord set or in a cord extension set, must be submitted with a flexible cable or cord at least 1 m long.

c. Unless otherwise specified, the tests are carried out in the order of the clauses.

d. Unless otherwise specified, plugs and socket-outlets are tested separately.

e. Unless otherwise specified, the neutral, if any, is treated as a pole.

f. Three samples are subjected to all the tests, with the exception of that of § 25e, for which three additional samples are required.

g. Accessories are deemed not to comply with this specification if there are more failures than that of one sample in one of the tests. If one sample fails in a test, that test and those preceding, which may have influenced the result of that test, are repeated on another set of

samples of the number specified in sub-clause f, all of which shall then comply with the repeated tests.

In general, it will only be necessary to repeat the test which caused the failure, unless the sample fails in one of the tests of §§ 20 to 22 inclusive, in which case the tests are repeated from that of § 19 onwards.
The applicant may submit, together with the first set of samples the additional set which may be wanted should one sample fail. The testing station will then, without further request, test the additional samples and will only reject if a further failure occurs. If the additional set of samples is not submitted at the same time, a failure of one sample will entail a rejection.

§ 5. RATING

a. Accessories shall have voltage and current ratings as shown in the following table.

Type	Nature of supply	Rated voltage V	Rated current A
2 P (plugs only)	⎓ and ~	250	2·5
2 P	⎓	250	10
	~	250	16
2 P	⎓	250	10
	~	250	16
2 P + ⏚	⎓	250	16
	~	380	16
2 P + N 3 P 2 P + N + ⏚ 3 P + ⏚ 3 P + N 3 P + N + ⏚	~	380	16
2 P 2 P + ⏚ 2 P + N 3 P 2 P + N + ⏚ 3 P + ⏚ 3 P + N 3 P + N + ⏚	~	380	25

In some countries, the current rating of 10/16 A 250 V accessories is restricted to 10 A.

b. If a 2·5 A 250 V plug is incorporated in a cord set, the connector shall be either a miniature connector or a 1 A connector.

c. If a portable socket-outlet is incorporated in a cord extension set, its rating shall not be less than that of the plug.

Compliance with the requirements of sub-clauses a to c is checked by inspection of the marking.

§ 6. CLASSIFICATION

Accessories are classified:

1. according to degree of protection against moisture:
   ordinary accessories,
   splash-proof accessories,
   jet-proof accessories;
2. according to earthing facilities:
   accessories without earthing contact,
   accessories with earthing contact;
3. according to method of connecting the cable or cord:
   rewirable accessories,
   non-rewirable accessories.

In addition, fixed socket-outlets are classified according to method of mounting:
   surface-type socket-outlets,
   flush-type socket-outlets.

Ordinary accessories have no special protection against moisture.

§ 7. MARKING

Accessories shall be marked with:
rated current in amperes, except that such marking is optional for plugs incorporated in cord sets,

rated voltage in volts,
symbol for nature of supply, if the accessory is intended for a.c. only or if the rating is different for a.c. and d.c.,

except that such marking is optional for 10/16 A 250 V accessories,
maker's name or trade mark,
type reference,
symbol for degree of protection against moisture, if applicable.

It is recommended that the current rating should not be marked on plugs incorporated in cord sets.
The type reference may be a catalogue number.

b. Plugs for Class II appliances shall not be marked with the symbol for Class II construction.

c. When symbols are used, they shall be as follows:

amperes . . . . . A,
volts . . . . . V,
alternating current . . . ~,
direct current . . . . . ⎓
splash-proof construction . . . (one drop in a triangle),
jet-proof construction . . . . . (two triangles with [illegible] inch).

For the marking of rated current and rated voltage, figures may be used alone. The figure for the d.c. current rating, if any, shall then be placed before the figure for the a.c. current rating, and separated from it by a line or dash, these figures being placed before or above that for the rated voltage and separated from the latter by a line.

If the current rating figures are separated by an oblique line, the current and voltage rating figures shall not be separated by an oblique line.

If a symbol for nature of supply is used, it shall be placed next to the marking for rated current and rated voltage.

The marking for current, voltage and nature of supply may accordingly be as follows:

10/16 A 250 V or 10–16/250 or $\frac{10-16}{250}$

25 A 380 V ~ or 25/380 ~ or $\frac{25}{380}$ ~

Ordinary accessories are not marked with any symbol for protection against moisture.

d. For fixed socket-outlets, the marking for rated current, rated voltage, nature of supply if necessary, maker's name or trade mark and type reference shall be on the main part of the socket-outlet. Marking other than type reference shall be easily discernible when the socket-outlet is mounted and wired as in normal use, if necessary after removal of the cover.

Parts, such as cover plates, intended to be sold separately, shall be marked with maker's name or trade mark and type reference.
The symbol for degree of protection against moisture shall be marked on the outside of the enclosure or cover so as to be easily discernible when the socket-outlet is mounted and wired as in normal use.

The term "main part" means the part carrying the contact members.

Additional type references may be marked on the main part, or on the outside or the inside of the enclosure or cover.

e. For plugs and portable socket-outlets, the marking specified in sub-clause a, other than the type reference, shall be easily discernible when the accessory is wired and assembled as in normal use.

The type reference may be marked on the inside of the enclosure or cover.

f. Terminals intended exclusively for the neutral conductor shall be indicated by the letter N.
Earthing terminals shall be indicated by the symbol ⏚
These indications shall not be placed on screws, removable washers or other removable parts.

Terminations for soldered, welded, crimped or similar connections are not required to be marked.

Compliance with the requirements of sub-clauses a to f is checked by inspection, if necessary during the test of § 11b. During the inspection, the plug or socket-outlet is not in engagement with its complementary accessory.

g. **Marking shall be indelible and easily legible.**

Compliance is checked by inspection and by rubbing the marking by hand for 15 seconds with a piece of cloth soaked with water and again for 15 seconds with a piece of cloth soaked with petroleum spirit.

The type reference may be marked with paint or ink, protected, if necessary, by varnish.

A special test for checking the indelibility of the marking of maker's name or trade mark and of nature of supply is under consideration.

§ 8. DIMENSIONS

a. **Accessories and mounting boxes shall comply with the appropriate Standard Sheets as specified below:**

2·5 A 250 V two-pole plug for Class II appliances	Sheet XVI,
10/16 A 250 V two-pole socket-outlet without earthing contact	Sheet I,
10/16 A 250 V two-pole plug without earthing contact [1])	Sheet II,
10/16 A 250 V two-pole socket-outlet with earthing contact	Sheet III or V,
10/16 A 250 V two-pole plug with earthing contact	Sheet IV, VI or VII,
10/16 A 250 V two-pole plug for Class II appliances	Sheet XVII,
16 A 250/380 V and 16 A 380 V socket-outlets, with or without earthing contact	Sheet VIII,
16 A 250/380 V and 16 A 380 V plugs, with or without earthing contact . .	Sheet IX,
25 A 380 V socket-outlets, with or without earthing contact	Sheet X,

[1]) Provisionally, plugs generally complying with Standard Sheet II, but having 4 mm pins with adequate resiliency, are allowed in some countries.

25 A 380 V plugs, with or without earthing contact . . . . . Sheet XI,
10/16 A 250 V two-pole flush-type socket-outlets, with or without earthing contact . . . . . Sheet XII or XIV,
mounting boxes for 10/16 A 250 V two-pole flush-type socket-outlets, with or without earthing contact . . Sheet XIII or XV,

mounting boxes for 16 A 250/380 V, 16 A 380 V and 25 A 380 V flush-type socket-outlets . . . . . Sheet XVIII.

Compliance is checked by means of the gauges shown in figures 1 to 14 inclusive and by measurement. Socket-outlets are first subjected to ten introductions and ten withdrawals of a plug complying with the corresponding Standard Sheet.
For dimensions which are, in the Standard Sheets, followed by the letter C and the gauge number, in brackets, compliance is checked only by these gauges.

Any lead-in groove on the engagement face of socket-outlets must not reduce the length of the unbroken cylindrical part of the holes for the plug pins below the value specified.
The use of the gauges shown in figure 9 for checking the diameter of pins is optional.
The replacement of the designs shown in Standard Sheets VIII to XI inclusive and XVIII is under consideration.
Standard Sheets for mounting boxes with claw fixing, suitable for 10/16 A 250 V multiple socket-outlets or for combinations of socket-outlets and switches, are under consideration.
Figure 5 is under consideration.
Gauges for 16 A 250/380 V, 16 A 380 V and 25 A 380 V accessories are under consideration.

b. It shall not be possible to engage a plug with:
a socket-outlet having a different rating, except that a 2·5 A 250 V two-pole plug for Class II appliances shall engage with 10/16 A 250 V two-pole socket-outlets, both with and without earthing contact [1]),

[1]) Provisionally, plugs generally complying with Standard Sheet II, but having 4 mm pins with adequate resiliency, shall engage with 10/16 A 250 V two-pole socket-outlets, without earthing contact.

a socket-outlet with a different number of poles,

a socket-outlet with earthing contact, if the plug has no earthing contact and is not a plug for Class II appliances.

It shall be possible to engage 10/16 A 250 V two-pole plugs with earthing contact with 10/16 A 250 V two-pole socket-outlets, both with and without earthing contact.

Compliance is checked by inspection, by manual test and by means of the gauges shown in figures 15 and 16. If necessary, a force of 150 N is applied for not more than 1 minute.

For plugs and socket-outlets with enclosures, covers or bodies of thermoplastic material, the tests are made at an ambient temperature of 35 ± 2 °C, both the accessories and the gauges being at this temperature.

For accessories of rigid material, such as thermosetting resins, ceramic material and the like, conformity to the relevant Standard Sheets ensures compliance with these requirements, so that, in general, the tests by means of gauges will not be necessary.

c. Deviations from the dimensions specified in the Standard Sheets may be made, but only if they provide a technical advantage and do not adversely affect the purpose and safety of accessories complying with the Standard Sheets, especially with regard to interchangeability and non-interchangeability.
Accessories with such deviations shall, however, comply with all other requirements of this specification as far as they reasonably apply.

§ 9. PROTECTION AGAINST ELECTRIC SHOCK

a. Socket-outlets shall be so designed that, when they are mounted and wired as in normal use, live parts are not accessible.

Live parts and earthing contacts of plugs shall not be accessible when the plug is in partial or complete engagement

with a socket-outlet, except that limited accessibility of side earthing-contacts is allowed if the design has a substantial advantage with regard to contact making.

Compliance is checked by inspection and, if necessary, by a test on the sample mounted and wired as in normal use.

For socket-outlets, the standard test finger shown in figure 17 is applied in every possible position.
For plugs, the test finger is applied in every possible position when the plug is in full engagement with a socket-outlet.

For plugs not complying with the Standard Sheets, the test finger is also applied when the plug is in partial engagement.
An electrical indicator with a voltage not less than 40 V is used to show contact with the relevant part.
Accessories with enclosures, covers or bodies of elastic or thermoplastic material, are subjected to the following additional tests which, in the case of thermoplastic material, are carried out at an ambient temperature of 35 ± 2 °C, the accessories being at this temperature.

The accessories are subjected for 1 minute to a pressure of 75 N, applied through the tip of the standard test finger. The finger is applied to all points where yielding of the insulating material could impair the safety of the accessory.
During this test, the accessory shall not deform to such an extent that those dimensions shown in the Standard Sheets which ensure safety are unduly altered.
Each sample is then pressed between two flat surfaces with a force of 150 N for 5 minutes.
After this treatment, the samples shall not show such permanent deformation as would result in those dimensions shown in the Standard Sheets which ensure safety, being unduly altered.

b. **It shall not be possible to make connection between a pin of a plug and a contact tube of a socket-outlet while any other pin is accessible.**

Compliance is checked by manual test and by means of the gauges shown in figures 18 and 19.

For accessories with enclosures, covers or bodies of thermoplastic material, the test is made at an ambient temperature of 35 ± 2 °C, both the accessory and the gauge being at this temperature.

For socket-outlets with enclosures, covers or bodies of rubber or polyvinyl chloride, the gauge is applied with a force of 75 N for 1 minute.

Single-pole insertion may be prevented by the use of a cover of sufficiently large diameter or by shutters which screen the live contact tubes when the plug is not in correct engagement.
For socket-outlets according to Standard Sheets III and V, single-way portable socket-outlets according to Standard Sheet I and accessories according to Standard Sheets VIII to XI, conformity to the Standard Sheets ensures compliance with this requirement, if these accessories are of rigid material, such as thermosetting resins, ceramic material and the like.

c. External parts of plugs and portable socket-outlets, with the exception of assembly screws and the like, shall be of insulating material.

Compliance is checked by inspection.

Lacquer or enamel is not deemed to be insulating material for the purpose of sub-clauses a. to c.

§ 10. PROVISION FOR EARTHING

a. Accessories with earthing contact shall be so constructed that, when inserting the plug, the earth connection is made before the current-carrying contacts of the plug become live.
When withdrawing the plug, the current-carrying contacts shall separate before the earth connection is broken.

For accessories not complying with the Standard Sheets, compliance is checked by inspection of the manufacturing drawings, taking into account the effect of tolerances, and by checking the samples against these drawings.

Conformity to the Standard Sheets ensures compliance with this requirement.

b. Earthing terminals of rewirable accessories with earthing contact shall be internal.

Earthing terminals of fixed socket-outlets shall be fixed to the base or to a part reliably fixed to the base.
Earthing contacts shall be fixed to the body of plugs and portable socket-outlets.
Earthing contacts of fixed socket-outlets shall be fixed to the base or to the cover, but, if fixed to the cover, they shall be automatically and reliably connected to the earthing terminal when the cover is put in place, the contact pieces being silver plated or having a protection no less resistant to corrosion and abrasion. This connection shall be ensured under all conditions which may occur in normal use, including loosening of cover fixing screws, careless mounting of the cover, etc.

Except as mentioned above, parts of the earthing circuit shall be in one piece or shall be reliably connected together by riveting, welding or the like.

The requirement regarding the connection between an earthing contact fixed to a cover and an earthing terminal may be met by the use of a solid pin and a resilient contact tube.
When considering the reliability of the connection between parts of the earthing circuit, the effect of possible corrosion is taken into account.

c. Accessible metal parts of fixed socket-outlets with earthing contact, which may become live in the event of an insulation fault, shall be permanently and reliably connected to the earthing terminal.

For the purpose of this requirement, small isolated screws and the like for fixing bases or covers, are not deemed to be accessible parts which may become live in the event of an insulation fault.

This requirement means that, for fixed socket-outlets with metal enclosures having an external earthing terminal, this terminal must be interconnected with the terminal fixed to the base.

d. Earthing terminals shall comply with the requirements of § 11.
If a fixed socket-outlet incorporates an additional external earthing terminal, it shall allow the connection of conductors having a nominal cross-sectional area of at least 6 mm^2.

e. The metal of earthing terminals shall be such that there is no risk of corrosion resulting from contact with the copper of the earthing conductor.
The screw or the body of the earthing terminal shall be of brass or other metal no less resistant to corrosion, and the contact surfaces shall be bare metal.

'The risk of corrosion is particularly great when copper is in contact with aluminium.

f. It shall not be possible to loosen the earthing terminal screw or nut without the aid of a tool.

Compliance with the requirements of sub-clauses b to f is checked by inspection and by the tests of § 11.

g. Earthing terminals of splash-proof and jet-proof socket-outlets with an enclosure of insulating material and having more than one cable entry, shall be capable of accepting an incoming and outgoing conductor to maintain the continuity of the earthing circuit.

Compliance is checked by inspection.

§ 11. TERMINALS

a. The connections in non-rewirable accessories shall be made at terminations for soldered, welded, crimped or similar connection; screwed connections shall not be used.

Compliance is checked by inspection.

b. Rewirable accessories shall be provided with terminals in which connection is made by means of screws, nuts or equally effective devices.
The terminals shall allow the connection of conductors having nominal cross-sectional areas as shown in the following table.

Accessory	Nominal cross-sectional area mm²	
	Flexible cables and cords	Cables for fixed wiring
10/16 A 250 V fixed socket-outlets	—	1 to 2·5
10/16 A 250 V plugs and portable socket-outlets	0·75 to 1·5	—
16 A 250/380 V and 16 A 380 V fixed socket-outlets	—	1·5 to 4
16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets	1 to 2·5	—
25 A 380 V fixed socket-outlets	—	2·5 to 10
25 A 380 V plugs and portable socket-outlets	2·5 to 6	—

Compliance is checked by inspection and by fitting conductors of the smallest and largest cross-sectional areas specified.

c. **Screws and nuts for clamping the conductors shall have a metric ISO thread or a thread comparable in pitch and mechanical strength. They shall not serve to fix any other component.**

Compliance is checked by inspection and by measurement.

SI and BA threads are deemed to be comparable in pitch and mechanical strength to metric ISO thread.

The clamping means for the conductor may be used to stop rotation or displacement of the terminal, or to stop rotation of the pins of plugs.

d. **Terminals shall have adequate mechanical strength, and shall be so fixed that they will not work loose when the clamping means are tightened or loosened.**

Compliance is checked by inspection and by the test of § 26a.

This requirement does not preclude floating terminals, provided their movement does not impair the correct operation of the accessory.

Terminals may be prevented from working loose by fixing with two screws, by fixing with one screw in a recess such that there is no appreciable play, or by other suitable means.

Covering with sealing compound without other means of locking is not deemed to be sufficient. Self-hardening resins may, however, be used to lock terminals which are not subject to torsion in normal use.

e. Terminals shall be so designed that they clamp the conductor between metal surfaces with sufficient contact pressure and without damage to the conductor. They shall not require special preparation of the conductor in order to effect correct connection, and they shall be so designed or placed that the conductor cannot slip out when the clamping screws or nuts are tightened.

Compliance is checked by inspection of the terminals and of the conductors, after fitting conductors of the smallest and largest cross-sectional areas specified in sub-clause b, the screws or nuts being tightened with a torque equal to two thirds of that specified in § 26a, and again after the test of § 19.

The term "special preparation of the conductor" covers soldering of the strands, use of cable lugs, formation of eyelets, etc., but not the reshaping of the conductor before its introduction into the terminal.
Conductors are considered to be damaged if they show deep or sharp indentations.

f. Terminals of the pillar type shall have dimensions as shown in the following table, except that the length of the thread in the pillar may be reduced, if the mechanical strength is adequate and at least two full threads are in engagement when a conductor of the smallest cross-sectional area specified in sub-clause b is tightly clamped.

Accessory	Number of screws	Minimum nominal thread diameter	Minimum diameter of hole for conductor	Minimum length of thread in pillar	Maximum difference between diameter of hole and nominal thread diameter
		mm	mm	mm	mm
10/16 A 250 V plugs and portable socket-outlets	1	2·5	2·5	1·8	0·6
	2	2·5	2·5	1·8	0·6
10/16 A 250 V fixed socket-outlets, 16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets	1	3·0 [1])	3·0	2·0	0·6
	2	2·5	3·0	1·8	1·0
16 A 250/380 V and 16 A 380 V fixed socket-outlets	1	3·5	3·6	2·5	0·6
	2	2·5	3·6	1·8	1·3
25 A 380 V accessories	1	4·0	4·5	3·0	1·0
	2	3·0 [1])	4·5	2·0	2·0

[1]) For BA threads, this value is reduced to 2·8.

Such terminals shall be so designed and located that the end of a conductor introduced into the hole is visible, or can pass beyond the threaded hole for a distance at least equal to half the nominal diameter of the screw, or 1·5 mm, whichever is the greater.

For headed screws, the length of the threaded part shall not be less than the sum of the diameter of the hole for the conductor and the length of the thread in the pillar. For other screws, the length of the threaded part shall not be less than the sum of the diameter of the hole for the conductor and the specified minimum length of the thread in the pillar.

The part against which the conductor is clamped need not necessarily be in one piece with the part carrying the clamping screw.
The length of the thread in the pillar is measured to the point where the thread is first broken by the hole for the conductor.

g. Screw terminals and stud terminals shall have dimensions not less than those shown in the following table, except that the length of the thread in the screw hole or nut and the length of thread on the screw or the stud may be reduced, if the mechanical strength is adequate and at least two full threads are in engagement when a conductor of the largest cross-sectional area specified in sub-clause b is lightly clamped.

Accessory	Nominal thread diameter	Length of thread on screw or stud	Length of thread in screw hole or nut	Nominal difference between diameters of head and shank of screw	Height of head of screw
	mm	mm	mm	mm	mm
10/16 A 250 V plugs and portable socket-outlets . .	3·0[1])	4·0	1·5	3·0	1·8
10/16 A 250 V fixed socket-outlets, 16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets . .	3·5	4·0	1·5	3·5	2·0
16 A 250/380 V and 16 A 380 V fixed socket-outlets . . .	4·0 (3·5)	5·5	2·5	4·0 (3·5)	2·4 (2·0)
25 A 380 V accessories . .	5·0 (3·5)	7·5	3·0	5·0 (3·5)	3·5 (2·0)

The values in brackets apply if a terminal with pressure plate has more than one clamping screw.
[1]) For BA threads, this value is reduced to 2·8.

If the required length of thread in a terminal screw hole is obtained by plunging, the edge of the extrusion shall be reasonably smooth and the length of thread shall exceed the specified minimum value by at least 0·5 mm. The length of the extrusion shall be not more than 80% of the original thickness of the metal, unless the mechanical strength is adequate with a greater length.

If an intermediate part, such as a pressure plate, is used between the head of the screw and the conductor, the length of thread on the screw shall be increased accordingly, but the nominal difference between the diameters of the head and the shank of the screw may be reduced by 1 mm. Such an intermediate part shall be locked against rotation.

Compliance with the requirements of sub-clauses f and g is checked by inspection, by measurement and, if necessary, by the tests of sub-clause h. A negative deviation of 0·15 mm is allowed for the nominal thread diameter and for the nominal difference between diameters of head and shank of the screw.

If it is necessary to dismantle the sample to check compliance, this check is made after the tests of § 27.
If the thread in the screw hole or nut is recessed, the length of the shank of headed screws must be increased accordingly.
If one or more of the dimensions are larger than specified, the other dimensions need not be correspondingly increased, provided that departures from the specified dimensions do not impair the function of the terminal

h. *If the length of thread in the pillar, screw hole or nut, or the length of thread on the screw or the stud, is smaller than that shown in the relevant table, or if the length of the extrusion is more than 80% of the original thickness of the metal, the mechanical strength of the terminal is checked by the following tests.*
Screws and nuts are subjected to the test of § 26a, but with the torque increased to 1·2 times the torque specified.
After this test, the terminal shall show no damage impairing its further use.
A conductor is then fastened, as specified in sub-clause e, once more and, while clamped, is subjected for 1 minute to an axial pull of the value shown in the following table, applied without jerks.

Accessory	Pull N
10/16 A 250 V plugs and portable socket-outlets	*10*
10/16 A 250 V fixed socket-outlets, 16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets	*50*
16 A 250/380 V and 16 A 380 V fixed socket-outlets	*50*
25 A 380 V accessories	*80*

During this test, the conductor shall not move noticeably in the terminal.

i. **Terminals of plugs and portable socket-outlets shall be so located or shielded that, should a wire of a stranded conductor escape from a terminal when the conductors are fitted, there is no risk of accidental connection between live parts of different polarity or between such parts and accessible metal parts, and no risk that wires emerge from the enclosure.**

Compliance is checked by inspection and by the test of sub-clause é.

†The requirements of sub-clauses b to i do not apply to non-rewirable accessories.

§ 12. CONSTRUCTION OF FIXED SOCKET-OUTLETS

a. **Contact-tube assemblies shall have sufficient resiliency to ensure adequate contact pressure.**

Compliance is checked by inspection and by the tests of § 8.

b. **Earthing pins shall have adequate mechanical strength.**

Compliance is checked by inspection and, for pins which are not solid, by the following test which is made after the tests of § 21.
The pin is supported as shown in figure 20.
A force of 100 N is exerted on the pin for 1 minute in a direction perpendicular to the axis of the pin, by means of a steel rod having a diameter of 4·8 mm, the axis of which is also at right angles to the axis of the pin.

During application of the force, the reduction of the diameter of the pin at the point where the force is applied shall not exceed 0·15 mm. After removal of the rod, the diameter of the pin shall not have changed by more than 0·06 mm in any direction.

c. Earthing contacts and neutral contacts shall be locked against rotation and removable only with the aid of a tool, after dismantling the socket-outlet.

Compliance is checked by inspection and by manual test.

A design permitting the removal of a contact without the aid of a tool, after removal of an enclosure requiring the use of a tool, is not allowed.

d. Contact tubes and pins of 10/16 A 250 V socket-outlets shall be nickel plated or shall have a protection no less resistant to corrosion and abrasion.

Compliance is checked by an appropriate test.

Details of the test are under consideration.

e. Metal strips of the earthing circuit, if any, shall have no burrs which might damage the insulation of the supply conductors.

Compliance is checked by inspection.

f. Insulating linings, barriers and the like shall have adequate mechanical strength and shall be secured in a reliable manner.

Compliance is checked by inspection and by the tests of § 24.

g. Socket-outlets shall be so constructed as to permit:

the conductors to be easily introduced into the terminals from the front; for ordinary surface-type socket-outlets this requirement applies after the base has been fixed to a wall,

the conductors to be easily secured in the terminals from the front, after fixing the base to a wall or in a box,

the correct positioning of the conductors without their insulation coming into contact with live parts of a polarity different from that of the conductor,

the covers or enclosures to be fixed easily after connection of the conductors.

Compliance is checked by inspection and by an installation test with conductors of the largest cross-sectional area specified in § 11b.

In some countries, designs in which the conductors are clamped in terminals tightened from the back are allowed.

h. Socket-outlets shall be so designed that full engagement of plugs is not prevented by any projection from their engagement face.

Compliance is checked by determining that the gap between the engagement faces of the socket-outlet and a plug does not exceed 1 mm when the plug is inserted into the socket-outlet as far as it will go.

i. If covers of socket-outlets are provided with bushes for the entry holes for the pins, it shall not be possible to remove these bushes from the outside or for them to become detached inadvertently from the inside, when the cover is removed.

j. Covers and cover plates shall be held in place by at least two independent means, at least one of which requires the use of a tool.
Fixing screws of covers or cover plates shall be captive.

The fixings of covers or cover plates of ordinary socket-outlets shall not serve to fix any other part.

If the fixings of covers of splash-proof or jet-proof socket-outlets serve also to fix the base, there shall be sufficient location to maintain the base in the correct position after removal of the cover.

If the cover plate of a flush-type socket-outlet incorporates a separate collar, rotation of this collar is allowed.
The use of tight fitting washers of cardboard or the like is deemed to be an adequate method for securing screws which must be captive.

Compliance with the requirements of sub-clauses i and j is checked by inspection.

k. Ordinary socket-outlets shall be so constructed that, when they are fixed and wired as in normal use, there are no free openings in their covers, other than the entry openings for the pins of the plug.

Compliance is checked by inspection and by an installation test with conductors of the smallest cross-sectional area specified in § 11b.

Small gaps between cover and cables or between cover and earthing contacts, if any, are neglected.

l. Ordinary surface-type socket-outlets shall have provision for back entry from a conduit perpendicular to the mounting surface of the socket-outlet.

Compliance is checked by inspection.

m. If a socket-outlet is provided with a mounting box, the design shall be such as will permit the preparation of the conductor ends after the box is mounted in position, but before the base is fitted in the box.

n. Cable entries shall allow the introduction of the conduit or the protective covering of the cable so as to afford complete mechanical protection.
Ordinary surface-type socket-outlets shall be so constructed that the conduit or protective covering can enter the enclosure for at least 1 mm, measured from the outside.

10/16 A 250 V two-pole ordinary surface-type socket-outlets, with or without earthing contact, shall be provided with at least one inlet opening with a nominal diameter of 10·3 mm and one with a nominal diameter of 16·5 mm, the tolerance being ± 0·5 mm for ceramic material and ± 0·4 mm for other material.

The requirement regarding the size of the inlet opening may be met by the use of knock-outs with alternative diameters or of adaptable fittings.

Additional requirements and dimensions for cable entries for other types of socket-outlet are under consideration.

Compliance with the requirements of sub-clauses m and n is checked by inspection during the test of sub-clause g and by measurement.

o. Screws or other means for fixing the base to its support or in a box or enclosure shall be easily accessible from the front. The fixings of bases shall not serve any other purpose.

p. Multiple socket-outlets with a common base shall be provided with fixed strips for the interconnection of contacts in parallel; the fixing of these strips shall be independent of the connection of the supply wires.

q. Multiple socket-outlets comprising separate bases shall be so designed that the correct position of each base with regard to the cover and the enclosure is ensured. The fixing of each base shall be independent of the fixing of the socket-outlet as a whole, to the mounting surface. The correct position of the bases shall not depend upon packing washers or similar removable parts.

Compliance with the requirements of sub-clauses o to q is checked by inspection.

r. Where a multiple flush-type socket-outlet consists of a number of socket-outlets with separate mounting boxes, the boxes shall be reliably fixed to one another and the cable entries shall be in correct alignment.

Compliance is checked by inspection and by manual test.

s. The mounting plate of surface-type multiple socket-outlets comprising separate bases shall have adequate mechanical strength.

Compliance is checked by inspection after the test of sub-clause g.

t. Socket-outlets shall not be combined with lampholders.

Compliance is checked by inspection.

u. Splash-proof and jet-proof socket-outlets shall be totally enclosed when fitted with screwed conduits, lead covered cables or hard metal sheathed cables and without a plug in position.

Splash-proof and jet-proof socket-outlets shall have provision for opening a drain hole at least 5 mm in diameter, or 20 mm^2 in area with a width of at least 3 mm. If the position of the lid is such that only one mounting position

is possible, the drain hole shall be effective in that position. Otherwise, the drain hole shall be effective in at least two positions of the socket-outlet when it is mounted on a vertical wall, one of these with the conductors entering at the top and the other with the conductors entering at the bottom.

Lid springs, if any, shall be of corrosion resistant material, such as bronze or stainless steel.

Compliance is checked by inspection, by measurement and by the tests of § 16.

Total enclosure when the plug is not in position may be achieved by means of a lid.
This requirement does not imply that the entry openings for the pins need be closed when the plug is not in position, provided that no accumulation of water can occur in the socket-outlet.
A drain hole in the back of the enclosure is deemed to be effective only if the design of the enclosure ensures a clearance of at least 5 mm from the wall, or provides a drainage channel of at least the size specified.

v. Socket-outlets shall withstand the stresses imposed by equipment likely to be introduced into them.
For 10/16 A 250 V socket-outlets, compliance is checked by means of the device shown in figure 21.
Each sample is mounted on a vertical surface with the plane through the contact tubes horizontal. The device is then fully engaged and a weight hung on it such that the force exerted is 5 N.

The device is removed after 1 minute and the socket-outlet is turned through 90° on the mounting surface. The test is made four times, the socket-outlet being turned through 90° after each engagement.
During the tests, the device shall not come out.
After the tests, the socket-outlets shall show no damage within the meaning of this specification; in particular, they shall comply with the requirements of § 22.

For other socket-outlets, a test is under consideration.

§ 13. CONSTRUCTION OF PLUGS AND PORTABLE SOCKET-OUTLETS

a. Pins of plugs and earthing pins of socket-outlets shall have adequate mechanical strength.

Compliance is checked by inspection and, for pins which are not solid, by the test of § 12b which is made after the tests of § 21.

b. Pins of plugs shall be locked against rotation and not removable without dismantling the plug.

It shall not be possible to replace the earthing or neutral pins or contacts in an incorrect position.

Compliance is checked by inspection, by manual test and by the test of § 24c.

c. Earthing contacts and neutral contacts of socket-outlets shall be locked against rotation and removable only with the aid of a tool, after dismantling the socket-outlet.

Compliance is checked by inspection and by manual test.

d. Contact-tube assemblies shall have sufficient resiliency to ensure adequate contact pressure.

Compliance is checked by inspection and by the tests of § 8.

e. Contact tubes and pins of 10/16 A 250 V plugs and socket-outlets shall be nickel plated or shall have a protection no less resistant to corrosion and abrasion.

Compliance is checked by an appropriate test.

Details of the test are under consideration.

f. The enclosure of rewirable accessories shall consist of more than one part and shall completely enclose the terminals, the ends of the flexible cable or cord and the cord anchorage. The construction shall be such that the conductors can be properly connected, and the cores kept in place so that there is no risk of contact between them from the point of separation of the cores to the terminals.

The body of non-rewirable accessories shall form a constructional unit which cannot be dismantled without making it permanently useless.

g. Parts of the body shall be reliably fixed to one another, and it shall not be possible to dismantle the plug or the socket-outlet without the aid of a tool.

Compliance with the requirements of sub-clauses f and g is checked by inspection and by manual test.

h. If covers of socket-outlets are provided with bushes for the entry holes for the pins, it shall not be possible to remove these bushes from the outside or for them to become detached inadvertently from the inside, when the cover is removed.

i. Assembly screws of plugs and socket-outlets shall be captive.

The use of tight fitting washers of cardboard or the like is deemed to be an adequate method for securing screws which must be captive.

Compliance with the requirements of sub-clauses h and i is checked by inspection.

j. The engagement face of plugs shall have no projections other than the pins, when the plug is wired as in normal use.

Compliance is checked by inspection, after fitting with conductors of the largest cross-sectional area specified in § 11b.

The earthing contacts shown in Standard Sheets IV and VII are not considered as projections from the engagement face.

k. Socket-outlets shall be so designed that full engagement of plugs is not prevented by any projection from their engagement face.

Compliance is checked by the test of § 12h.

l. Splash-proof and jet-proof plugs and socket-outlets shall be provided with an effective gland or the like for sealing the cable entries.

Splash-proof and jet-proof socket-outlets shall be totally enclosed when fitted with a flexible cable or cord as in normal use and without a plug in position.

Compliance is checked by inspection and by the tests of § 16.

Total enclosure when the plug is not in position may be achieved by means of a lid.

m. **Adaptors shall not be of the multiway type.**

n. **Plugs and socket-outlets shall not be combined with lampholders or lampcaps.**

o. **Plugs complying with Standard Sheets XVI and XVII shall be non-rewirable; they shall not be incorporated in a cord extension set. If they are incorporated in a cord set, this shall be provided with a connector intended for the connection of Class II appliances.**

Flexible cables or cords provided with a non-rewirable plug complying with Standard Sheet XVI or XVII must not be used for any other purpose than for the supply of Class II appliances.

Compliance with the requirements of sub-clauses m to o is checked by inspection.

p. **Plugs shall be incorporated in cord sets only, if the connector complies with CEE Publication 22.**

Compliance is checked by inspection and, if necessary, by testing the connector according to CEE Publication 22.

q. **Components, such as switches and fuses, incorporated in plugs shall comply with the relevant CEE specification as far as it reasonably applies.**

Compliance is checked by inspection and, if necessary, by testing the component according to the relevant CEE specification.

r. **If a plug is an integral part of other equipment, that equipment shall not cause overheating of the pins or impose undue strain on fixed socket-outlets.**

Examples of equipment with plugs which are an integral part, are razors and lamps with rechargeable batteries.

For 10/16 A 250 V two-pole plugs, with or without earthing contact, compliance is checked by the following tests.
The equipment is inserted into a fixed socket-outlet complying with this specification, the socket-outlet being connected to a supply voltage equal to 1·1 times the highest rated voltage of the equipment. After 1 hour, the temperature rise of the pins shall not exceed 45 deg C.
The equipment is then inserted into a fixed socket-outlet without earthing contact complying with this specification, the socket-outlet being pivoted about a horizontal axis through the contact tubes at a distance of 8 mm behind the engagement face of the socket-outlet. The additional torque which has to be applied to the socket-outlet to maintain the engagement face in the vertical plane shall not exceed 0·25 Nm.

For other plugs, tests are under consideration.

§ 14. INTERLOCKED ACCESSORIES

Accessories interlocked with a switch shall be so constructed that a plug cannot be inserted into, or withdrawn from, the socket-outlet while the contact tubes are live, and the contact tubes of the socket-outlet cannot be made live until a plug is almost completely in engagement.

Compliance is checked by inspection and by manual test.

The standardization of interlocking devices is under consideration.

§ 15. SAFETY SOCKET-OUTLETS

Safety socket-outlets shall be so constructed that the contacts are made dead or are completely screened when the plug is withdrawn.

The means for achieving this shall be such that it cannot readily be operated by anything other than a plug, and it shall not depend upon parts which are liable to be lost.

Compliance is checked by inspection and by manual test.

§ 16. MOISTURE RESISTANCE

a. **The enclosure of splash-proof and jet-proof accessories shall provide the degree of protection against moisture in accordance with the classification of the accessory.**

Compliance is checked by the appropriate treatment specified below, which is made on accessories fitted with the cables or conduits for which they are designed, screwed glands being tightened with a torque equal to two thirds of that applied in the test of § 24g.

Fixed socket-outlets are mounted on a vertical surface with an open drain hole, if any, downwards; they are tested with and also without a plug in engagement.
Plugs are tested when in engagement with a fixed socket-outlet.
Portable socket-outlets are tested when in engagement with a plug, and are placed in the most unfavourable position
For testing socket-outlets, plugs complying with the relevant Standard Sheet and having the maximum outline and the maximum nominal dimensions, are used.

1. *Splash-proof accessories are subjected for 5 minutes to an artificial rainfall of 3 mm per minute, falling from a height of 2 m above the accessory, vertically or at an angle of 45°, whichever is more unfavourable, and immediately afterwards for 5 minutes to splashing in all directions by means of the splash apparatus shown in figure 22.*

   During the latter test, the water pressure is so regulated that the water splashes up 15 cm above the bottom of the bowl. The bowl is placed on a horizontal support 5 to 10 cm below the lowest edge of the sample and is moved around so as to splash the sample from all directions. Care is taken that the sample is not hit by the direct jet.

2. *Jet-proof accessories are sprayed for 15 minutes from all directions by means of a hose having a nozzle with an internal diameter of 12·5 mm. The nozzle is held 3 m away from the sample.*

   The water pressure at the nozzle is equivalent to a head of about 10 m.

Immediately after the treatment specified under 1 or 2, the samples shall withstand an electric strength test as specified in § 17c, and inspection shall show that water has not entered the samples to any appreciable extent and has not reached live parts.

b. **Accessories shall be proof against humid conditions which may occur in normal use.**

Compliance is checked by the humidity treatment described in this sub-clause, followed immediately by the measurement of the insulation resistance and by the electric strength test, specified in § 17.
Cable entries, if any, are left open; if knock-outs are provided, one of them is opened.
Covers which can be removed without the aid of a tool, are removed and subjected to the humidity treatment with the main part; spring lids are open during this treatment.

The humidity treatment is carried out in a humidity cabinet containing air with a relative humidity maintained between 91 and 95%. The temperature of the air, at all places where samples can be located, is maintained within 1 °C of any convenient value T between 20 and 30 °C.
Before being placed in the humidity cabinet, the samples are brought to a temperature differing from T by not more than 2 °C.
The samples are kept in the cabinet for:
2 days (48 hours) for ordinary accessories,
7 days (168 hours) for splash-proof and jet-proof accessories.

In most cases, the samples may be brought to the specified temperature of T ± 2 °C by keeping them at this temperature for at least 4 hours before the humidity treatment.
A relative humidity between 91 and 95% can be obtained by placing in the humidity cabinet a saturated solution of sodium sulphate (Na_2SO_4) or potassium nitrate (KNO_3) in water, having a sufficiently large contact surface with the air.
In order to achieve the specified conditions within the cabinet, it is necessary to ensure constant circulation of the air within and, in general, to use a cabinet which is thermally insulated.

After this treatment, the samples shall show no damage within the meaning of this specification.

§ 17. INSULATION RESISTANCE AND ELECTRIC STRENGTH

a. **The insulation resistance and the electric strength of accessories shall be adequate.**

Compliance is checked by the tests of sub-clauses b and c, which are made immediately after the test of § 16b, in the humidity cabinet or in the room in which the samples were brought to the prescribed temperature, after reassembly of covers which may have been removed.

b. *The insulation resistance is measured with a d.c. voltage of approximately 500 V applied, the measurement being made 1 minute after application of the voltage.*
For socket-outlets, the insulation resistance is measured consecutively:

1. *between all poles connected together and the body, the measurements being made with and also without a plug in engagement;*
2. *between each pole in turn and all others, these being connected to the body, with a plug in engagement;*
3. *between any metal enclosure and metal foil in contact with the inner surface of its insulating lining, if the distance between any live part and the metal of the enclosure is less than the value required in item 5 of the table of § 27a;*
4. *between any metal part of the cord anchorage, including clamping screws, and the earthing terminal or earthing contact, if any, of portable socket-outlets;*
5. *between any metal part of the cord anchorage of portable socket-outlets and metal foil wrapped round the flexible cable or cord, or a metal rod of the same diameter as the flexible cable or cord, inserted in its place.*

The term "body" used in items 1 and 2 includes all accessible metal parts, metal frames supporting the base of flush-type socket-outlets, metal foil in contact with the outer surface of external parts of insulating material, fixing screws of bases, covers and cover plates, external assembly screws and earthing terminals or earthing contacts.

For plugs, the insulation resistance is measured consecutively:

1. *between all poles connected together and the body;*
2. *between each pole in turn and all others, these being connected to the body;*
3. *between any metal part of the cord anchorage, including clamping screws, and the earthing terminal or earthing contact, if any;*
4. *between any metal part of the cord anchorage and metal foil wrapped round the flexible cable or cord, or a metal rod of the same diameter as the flexible cable or cord, inserted in its place*

The term "body" used in items 1 and 2 includes all accessible metal parts, external assembly screws, earthing terminals, earthing contacts and metal foil in contact with the outer surface of external parts of insulating material, other than the engagement face.

The insulation resistance shall not be less than 5 MΩ.

c. *A voltage of 2 000 V of substantially sine-wave form, having a frequency of 50 c/s, is applied for 1 minute between the parts mentioned in sub-clause b.*
Initially, not more than half the prescribed voltage is applied, then it is raised rapidly to the full value.
No flashover or breakdown shall occur during the test.

Glow discharges without drop in voltage are neglected.

§ 18. OPERATION OF EARTHING CONTACTS

Earthing contacts shall provide adequate contact pressure and shall not deteriorate in normal use.

For two-pole 10/16 A 250 V socket-outlets with side earthing-contacts, compliance is checked by measuring the force exerted by the earthing contacts by means of the device shown in figure 23. The device has two pivoted levers L, the lower ends of which bear against the earthing contacts. The upper ends are provided with hooks H, by means of which a force can be applied. Marker lines

a and b are provided at the upper ends; they are so placed that the line on the lever and the lines on the fixed part are in line when the distance between the tip F of the lever and the centre line of the device is 16 mm.
The device is inserted into the recess of the socket-outlet, where it is locked in position by tightening the locking screw C, which forces the three pins B against the side of the recess; these pins are equally spaced around the body of the device. If the tips F of the levers do not bear against that part of the earthing contacts which makes contact with the earthing contacts of a normal plug, the device is positioned by means of spacing pieces as shown in the figure.

A force is then applied to each of the hooks in turn and the value of the force is noted when the marker lines are in line. The test is then repeated, the device being turned through 180° in the recess.

The average value of the forces necessary to move each contact to the indicated position, shall not be less than 5 N.
After the tests of §§ 19 and 21, the contacts are separated to the maximum distance possible, but by not more than 35 mm; they are held in this position for 48 hours.
After this treatment, the socket-outlet is subjected to the test of § 19. The force exerted is again measured as described above, when the sum of the forces for each contact shall not be less than 60% of the original value. The force exerted by each contact shall, however, not be less than 5 N.
For other accessories, compliance is checked by the tests of §§ 19 and 21.

§ 19. TEMPERATURE RISE

Accessories shall be so constructed that the temperature rise in normal use is not excessive.

Compliance is checked by the following test, which is made on socket-outlets, on plugs with resilient earthing contact-tubes and, if necessary, on other plugs.
Rewirable accessories are fitted with conductors of the largest cross-sectional area specified in § 11b, the terminal screws or nuts being tightened with a torque equal to two thirds of that specified in § 26a.
To ensure normal cooling of the terminals, a length of at least 1 m of the cable or cord is connected to the terminals.

Non-rewirable accessories are tested as delivered.
Socket-outlets are tested using a test plug with brass pins having the minimum specified dimensions and spaced at the nominal distance.

Plugs are tested using a fixed socket-outlet complying with this specification and having as near to average characteristics as can be selected, but with minimum diameter earthing pin, if any.

The plug is inserted into the socket-outlet, and an alternating current of the value shown in the following table is passed through all poles and the earthing circuit, if any, for 1 hour.

Rated current A	*Test current* A
2·5	4
10/16	22
16	22
25	35

The temperature is determined by means of melting particles, colour changing indicators or thermocouples, which are so chosen and positioned that they have negligible effect on the temperature being determined.
The temperature rise shall not exceed 45 deg C at any point.

After the test, the conductors are examined as prescribed in § 11e.

§ 20. BREAKING CAPACITY

Accessories shall have adequate breaking capacity.

Compliance is checked by testing socket-outlets, and plugs with pins which are not solid, by means of an apparatus similar to that shown in figure 24.
Socket-outlets are tested using a test plug with steel pins having the maximum specified dimensions, with a tolerance of — 0·06 mm, and spaced at the nominal distance, with a tolerance of ± 0·05 mm. The ends of round pins are rounded.

Plugs are tested using a fixed socket-outlet complying with this specification and having as near to average characteristics as can be selected.

Care is taken that the pins of the test plug are in good condition before the test is started.

For 2·5 A 250 V plugs and for 10/16 A 250 V accessories, the stroke of the test apparatus is between 50 and 60 mm.

The characteristics of the test apparatus for accessories with other ratings are under consideration.

The plug is inserted into and withdrawn from the socket-outlet 50 times (100 strokes) at a rate of:

30 strokes per minute if the rated current is 2·5 A or 10/16 A,

15 strokes per minute in all other cases.

A stroke is an insertion or a withdrawal of the plug.

The test current and voltage are as shown in the following table.

Rating of accessory	*Test current and voltage*
2·5 A 250 V	*4 A 275 V ~*
10/16 A 250 V	*12·5 A 242 V ⎓ and 20 A 275 V*
16 A 250/380 V and 16 A 380 V	*20 A 242 V ⎓ and 20 A 418 V*
25 A 380 V	*31·25 A 418 V ~*

The test voltage of 242 V (220 V + 10%) is considered to be adequate, because on d.c. networks rated voltages exceeding 230 V and appreciable voltage rises are unlikely.

If a plug of a cord set has no marking for rated current, the rate of operation and the test current and voltage are as prescribed for the corresponding type of plug not incorporated in a cord set.

Accessories for a.c. only are tested with a.c. in a circuit with cos φ = 0·6 ± 0·05.

Accessories with a rated voltage or rated current which is higher for a.c. than for d.c., are tested for half the number of strokes with d.c. in a non-inductive circuit, and with a.c. in a circuit with cos φ = 0·6 ± 0·05 for the remainder.

Other accessories are tested with d.c. in a non-inductive circuit.

No current is passed through the earthing circuit, if any.

The test is made with the connections shown in figure 25. Two-pole accessories with neutral contact (2 P + N and 2 P + N + ⏚) are connected to two phases and the neutral of a three-phase system.

Resistors and inductors are not connected in parallel, except that, if an air-core inductor is used, a resistor taking approximately 1% of the current through the inductor is connected in parallel with it. Iron-core inductors may be used, provided the current has substantially sine-wave form. For the tests on three-pole accessories, three-core inductors are used.

For two-pole accessories, the accessible metal parts, the metal support and the metal frame supporting the base of flush-type socket-outlets are connected through the selector switch C to one of the poles of the supply for half the number of strokes, and to the other pole for the remainder. For three-pole accessories, they are connected consecutively to each pole of the supply for one third of the number of strokes.

During the test, no sustained arcing shall occur.
After the test, the samples shall show no damage impairing their further use and the entry holes for the pins shall not show any serious damage.

§ 21. NORMAL OPERATION

Accessories shall withstand, without excessive wear or other harmful effect, the mechanical, electrical and thermal stresses occurring in normal use.

Compliance is checked by testing socket-outlets, and plugs with resilient earthing contact-tubes or with pins which are not solid, by means of the apparatus described in § 20, which is used in the manner indicated in that clause.
The plug is inserted into and withdrawn from the socket-outlet 5 000 times (10 000 strokes) at a rate of:
30 strokes per minute if the rated current is 2·5 A or 10/16 A,

15 strokes per minute in all other cases.

The samples are tested with a.c. at rated voltage in a circuit with $\cos \varphi = 0{\cdot}6 \pm 0{\cdot}05$.
For accessories having a rated current not exceeding 16 A, the rated current is passed during each engagement of the plug.

In all other cases, the rated current is passed during alternate engagements and disengagements, the other engagements and disengagements being made without current flowing.
No current is passed through the earthing circuit, if any.
The test is made with the connections indicated in § 20, the selector switch C being operated as prescribed in that clause.

During the test, no sustained arcing shall occur.
After the test, the samples shall show:
- *no wear impairing their further use,*
- *no deterioration of enclosures or barriers,*
- *no damage to the entry holes for the pins that might impair proper working,*
- *no loosening of electrical or mechanical connections,*
- *no seepage of sealing compound.*

The samples shall then comply with the requirements of § 19, the test current being, however, equal to the rated current, and they shall withstand an electric strength test made in accordance with § 17c, the test voltage being, however, reduced to 1 500 V.

If a plug of a cord set has no marking for rated current, the rate of operation and the test current are as prescribed for the corresponding type of plug not incorporated in a cord set.
The humidity treatment is not repeated before the electric strength test of this clause.
The tests of §§ 12b and 13a are made after the tests of this clause.

§ 22. FORCE NECESSARY TO WITHDRAW THE PLUG

The construction of accessories shall be such as will allow the easy insertion and withdrawal of the plug, but will prevent it from working out of the socket-outlet in normal use.

Compliance is checked, for socket-outlets only, by a test to ascertain that the force necessary to withdraw test plugs from the socket-outlet is within the prescribed limits.

The socket-outlet is fixed to the mounting A of an apparatus as shown in figure 26, so that the axes of the contact tubes are vertical and the entry holes for the pins of the plug face downwards.
The test plugs have finely ground pins of hardened steel, with dimensions as shown in the following table and spaced at the nominal distance, with a tolerance of ± 0·05 mm.

Rating of socket-outlet	Maximum pin size mm	Minimum pin size mm
10, 16 A 250 V	Ø 4·85 ± 0·01	Ø 4·75 ± 0·01
16 A 250/380 V and 16 A 380 V	(2·9 ± 0·01) × (8 ± 0·1)	(2·7 ± 0·01) × (8 ± 0·1
25 A 380 V	(3·4 ± 0·01) × (9 ± 0·1)	(3·2 ± 0·01) × (9 ± 0·1)

The pins are wiped free from grease before use.
The test plug with the maximum size pins is inserted into and withdrawn from the socket-outlet ten times. It is then again inserted, a carrier E, for a principal weight F and a supplementary weight G, being attached to it by means of a suitable clamp D. The supplementary weight is such that it exerts a force equal to one tenth of the maximum withdrawal force shown in the table below.

The principal weight, together with the supplementary weight, the clamp, the carrier and the plug, exert a force equal to the maximum withdrawal force shown. The principal weight is hung on without jolting the plug and the supplementary weight is allowed to fall from a height of 5 cm onto the principal weight.
The plug shall not remain in the socket-outlet.
Following this, the test is repeated using the test plug with the minimum size pins, the principal weight and the supplementary weight being replaced by another weight such that the total weight of the plug, the clamp, the carrier and the new weight exert a force equal to the minimum withdrawal force shown in the table.
The plug shall not come out.

Rating of socket-outlet	Number of poles	Withdrawal force N	
		maximum	minimum
10/16 A 250 V, 16 A 250/380 V and 16 A 380 V	2	48	8
	3	54	9
	over 3	60	10
25 A 380 V	2	72	12
	3	84	14
	over 3	96	16

The test plug and any additional weight that may be necessary are applied gently, and care is taken not to knock the assembly when checking the minimum withdrawal force.

For the purpose of this test, earthing contacts, irrespective of their number, are considered as one pole.
Interlocked accessories are tested in the unlocked position.
A test for 2·5 A 250 V plugs is under consideration.

§ 23. FLEXIBLE CABLES AND CORDS AND THEIR CONNECTION

a. Non-rewirable accessories shall be provided with a flexible cable or cord complying with either CEE Publication 2 or CEE Publication 13.
The nominal cross-sectional area of the conductors shall be not less than specified below.
For 2·5 A 250 V plugs for Class II appliances:

when intended for connection to an appliance . . . . . 0·5 mm², 0·75 mm² or flat twin tinsel cord, according to appliance,

when incorporated in a cord set provided with a miniature connector . . . . . 0·5 mm² or flat twin tinsel cord,

when incorporated in a cord set provided with a 1 A connector . . . . . 0·75 mm².

For 10/16 A 250 V plugs:

when intended for connection to an appliance . . . . . 0·75 mm² or 1 mm², according to appliance,

when incorporated in a cord set provided with a 6 A connector . . . . . 0·75 mm²,

when incorporated in a cord set provided with a 10 A or 16 A connector, or in a cord extension set . . . . . 1 mm².

For 10/16 A 250 V portable socket-outlets . . . . 1 mm².
For 16 A 250/380 V and 16 A 380 V plugs and portable socket-outlets . . . . . 1·5 mm².
For 25 A 380 V plugs and portable socket-outlets 2·5 mm².

Flexible cables or cords shall have the same number of cores as there are poles in the plug or socket-outlet, earthing contacts, if any, being considered as one pole, irrespective of their number. The core connected to the earthing contact shall be identified by the colour combination green/yellow.

Compliance is checked by inspection, by measurement and by testing the flexible cables or cords according to CEE Publication 2 or 13.

b. Plugs and portable socket-outlets shall be provided with a cord anchorage such that the conductors are relieved from strain, including twisting, where they are connected to the terminals or terminations, and that their covering is protected from abrasion.

c. For rewirable plugs and rewirable portable socket-outlets:

it shall be clear how the relief from strain and the prevention of twisting is intended to be effected;
the cord anchorage, or at least part of it, shall be integral with or fixed to one of the component parts of the plug or portable socket-outlet;

makeshift methods, such as tying the cable or cord into a knot or tying the ends with string, shall not be used;

cord anchorages shall be suitable for the different types of flexible cable or cord which may be connected, and their effectiveness shall not depend upon the assembly of the parts of the body;
cord anchorages shall be of insulating material or be provided with an insulating lining fixed to the metal parts;
metal parts of the cord anchorage, including clamping screws, shall be insulated from the earthing circuit.

Compliance with the requirements of sub-clauses b and c is checked by inspection and by the tests of sub-clause d and § 17.

d. *Plugs and portable socket-outlets, provided with a flexible cable or cord, are subjected to a pull test in an apparatus similar to that shown in figure 27, followed by a torque test.*
Non-rewirable accessories are tested as delivered.
Rewirable 10/16 A 250 V two-pole plugs without earthing contact and exclusively designed for use with a two-core flexible cord having a nominal cross-sectional area of 0·75 mm², are tested with a flexible cord of the type CEE (2) 51 and then with a flexible cord of the type CEE (13) 42.
Other rewirable accessories are tested with each of the types of cable or cord, complying with CEE Publication 2 or 13, shown in the following table.

Rating of accessory	*Number of poles*	*Types of cable or cord*	*Number of cores and nominal cross-sectional area mm²*	*Limits for external dimensions mm*
10/16 A 250 V	*2*	*CEE (2) 51*	*2 × 0·75*	*6·0*
		CEE (13) 42	*2 × 0·75*	*2·7 × 6·4*
		CEE (2) 53	*2 × 1·5*	*10·5*
	3	*CEE (2) 53*	*3 × 0·75*	*6·8*
		CEE (2) 53	*3 × 1·5*	*11·0*
16 A 250/380 V and 16 A 380 V	*3*	*CEE (2) 53*	*3 × 1*	*7·2*
		CEE (2) 53	*3 × 2·5*	*13·0*
	4	*CEE (2) 53*	*4 × 1*	*7·8*
		CEE (2) 53	*4 × 2·5*	*14·0*
	5	*CEE (2) 53*	*5 × 1*	*8·8*
		CEE (2) 53	*5 × 2·5*	*15·5*
25 A 380 V	*2*	*CEE (2) 53*	*2 × 2·5*	*9·8*
		CEE (2) 61	*2 × 6*	*18·5*
	3	*CEE (2) 53*	*3 × 2·5*	*10·5*
		CEE (2) 61	*3 × 6*	*20·0*
	4	*CEE (2) 53*	*4 × 2·5*	*11·5*
		CEE (2) 61	*4 × 6*	*22·0*
	5	*CEE (2) 53*	*5 × 2·5*	*13·0*
		CEE (2) 61	*5 × 6*	*24·5*

Earthing contacts, irrespective of their number, are considered as one pole.

Conductors of the cable or cord of rewirable accessories are introduced into the terminals, the terminal screws being tightened just sufficiently to prevent the conductors from easily changing their position. The cord anchorage is used in the normal way, clamping screws being tightened with a torque equal to two thirds of that specified in § 26a. After reassembly of the sample, the component parts shall fit snugly and it shall not be possible to push the cable or cord into the sample to any appreciable extent.

The sample is fixed in the test apparatus so that the axis of the cable or cord is vertical where it enters the sample.
The cable or cord is then subjected 100 times to a pull of:

50 N if the rated current is 2·5 A,
60 N if the rated current is 10/16 A,
80 N if the rated current is 16 A,
100 N if the rated current is 25 A.

The pulls are applied without jerks, each time for 1 second.

Immediately afterwards, the cable or cord is subjected for 1 minute to a torque of:

0·15 Nm if the rated current is 2·5 A or 10/16 A and the cord has two cores with a nominal cross-sectional area of 0·75 mm²,
0·25 Nm if the rated current is 10/16 A and the cable or cord is other than a two-core cord with a nominal cross-sectional area of 0·75 mm²,
0·35 Nm if the rated current is 16 A,
0·425 Nm if the rated current is 25 A.

If a plug of a cord set has no marking for rated current, the pull and the torque to be applied are as prescribed for the corresponding type of plug not incorporated in a cord set.

For flat twin tinsel cords and for cords with a nominal cross-sectional area of 0·5 mm², the values for the torque are under consideration.

During the tests, the cable or cord shall not be damaged.
After the tests, the cable or cord shall not have been displaced by more than 2 mm. For rewirable accessories, the ends of the conductors shall not have moved noticeably in the terminals; for non-rewirable accessories, there shall be no break in the electrical connections.

For the measurement of the longitudinal displacement, a mark is made on the cable or cord while it is subjected to the pull, at a distance

of approximately 2 cm from the end of the sample or the cord guard, before starting the tests. If, for non-rewirable accessories, there is no definite end to the sample or the cord guard, an additional mark is made on the body of the sample.
After the tests, the displacement of the mark on the cable or cord in relation to the sample or the cord guard is measured while the cable or cord is subjected to the pull.

e. **Non-rewirable accessories shall be so designed that the flexible cable or cord is protected against excessive bending where it enters the accessory.**
Guards provided for this purpose shall be of insulating material and shall be fixed in a reliable manner.

Helical metal springs, whether bare or covered with insulating material, are not allowed as cord guards.

Compliance is checked by inspection and by a flexing test made by means of an apparatus similar to that shown in figure 28.
The sample, complete with the flexible cable or cord as delivered, is fixed to the oscillating member of the apparatus so that, when this is at the middle of its travel, the axis of the flexible cable or cord, where it enters the sample, is vertical and passes through the axis of oscillation.
Samples with flat cords are mounted so that the major axis of the section is parallel to the axis of oscillation.
The cable or cord is loaded with a weight such that the force applied is:

20 N for accessories with cables or cords having a nominal cross-sectional area exceeding 0·75 mm²,

10 N for other accessories.

A current equal to the rated current of the accessory or the following current, whichever is the lower, is passed through the conductors:

16 A for accessories with cables or cords having a nominal cross-sectional area exceeding 0·75 mm²,

10 A for accessories with cords having a nominal cross-sectional area of 0·75 mm²,

2·5 A for accessories with cords having a nominal cross-sectional area less than 0·75 mm².

The voltage between the conductors is equal to the rated voltage of the sample.
The oscillating member is moved backwards and forwards through an angle of 90° (45° on either side of the vertical), the number

of flexings being 10 000 and the rate of flexing 60 per minute.

A flexing is one movement, either backwards or forwards.

Samples with circular-section cables or cords are turned through 90° in the oscillating member after 5 000 flexings; samples with flat cords are only bent in a direction perpendicular to the plane containing the axes of the cores.

After the test, the samples shall show no damage within the meaning of this specification, the guard shall not have separated from the body and the insulation of the flexible cable or cord shall not be damaged.

The voltage drop, with the test current flowing, between each contact and the corresponding conductor shall not exceed 10 mV.

Breakage of some of the strands of the conductors is neglected.

§ 24. MECHANICAL STRENGTH

a. **Accessories shall have adequate mechanical strength.**

Fixed socket-outlets shall withstand the stresses imposed during installation.

Compliance is checked by the appropriate tests of sub-clauses b to h as follows:

for mounting boxes for flush-type socket-outlets	*sub-clause b,*
for fixed socket-outlets	*sub-clauses b and d,*
for portable single-way socket-outlets:	
with enclosures, covers or bodies other than of elastic or thermoplastic material	*sub-clause c,*
with enclosures, covers or bodies of elastic or thermoplastic material	*sub-clauses c, e and f,*
for portable multiway socket-outlets:	
with enclosures, covers or bodies other than of elastic or thermoplastic material	*sub-clause b,*
with enclosures, covers or bodies of elastic or thermoplastic material	*sub-clauses b and e,*

for plugs:
with enclosures, covers or bodies other than of elastic or thermoplastic material . . . . . sub-clause c,
with enclosures, covers or bodies of elastic or thermoplastic material . . sub-clauses c, e and f,

for glands of splash-proof and jet-proof accessories . . . . . sub-clause g,

for plug pins provided with an insulating collar . . . . . sub-clause h.

b. *The samples are subjected to blows by means of an impact-test apparatus as shown in figure 29.*
The striking element has a hemispherical face of 10 mm radius, made of hardwood or similar material, and has a mass of 0·15 kg. It is rigidly fixed to the lower end of a steel tube with an external diameter of 9 mm and a wall thickness of 0·5 mm, which is pivoted at its upper end in such a way that it swings only in a vertical plane. The axis of the pivot is 1 m above the axis of the striking element.
The design of the apparatus is such that a force between 1·9 and 2·0 N has to be applied to the face of the striking element to maintain the tube in a horizontal position.
The sample is mounted on a sheet of plywood, 8 mm thick and 175 mm square, without any metallic backplate, the plywood being secured at its top and bottom edges to a rigid bracket. This bracket and its pivot support are mounted on a rigid frame, which is fixed to a solid wall of brick, concrete or the like.

The design of the mounting is such that:
the sample can be so placed that the point of impact lies in the vertical plane through the axis of the pivot,
the sample can be moved horizontally and turned about an axis perpendicular to the surface of the plywood,
the plywood can be turned about a vertical axis.

Fixed socket-outlets are mounted on the plywood as in normal use. Cable entries which are not provided with knock-outs, are left open; if they are provided with knock-outs, one of them is opened

Fixing screws of bases and covers are tightened with a torque equal to two thirds of that specified in § 26a.
Flush-type socket-outlets are fixed in a mounting box, which is fitted in a recess in a block of hardwood secured to the plywood. The thickness of the hardwood block is such that the back of the box is in contact with the plywood and the front of the box is level with the front surface of the block. The size of the block is such that no part of the cover plate overhangs it.

Mounting boxes for flush-type socket-outlets are held so that the opening of the box is in contact with the plywood.
The sample is mounted so that the point of impact lies in the vertical plane through the axis of the pivot.
The striking element is allowed to fall from a height of:

15 cm for cover plates of flush-type socket-outlets, and for those parts of covers which are recessed to a depth of at least one quarter of the largest dimension of the recessed part,

20 cm for enclosures of ordinary surface-type socket-outlets,

25 cm for other parts.

The samples are subjected to ten blows, which are evenly distributed over the sample.

The height of fall is the vertical distance through which the striking element descends from the point of release to the point of impact.
In general, five of the blows are applied as follows:
for flush-type socket-outlets, one blow in the centre, one at each extremity of the area over the recess in the block, and the other two approximately midway between the previous blows, preferably on the ridge, if any, the sample being moved horizontally;
for other fixed socket-outlets and for mounting boxes, one blow in the centre, one on each side of the sample after it has been turned as far as possible, but not through more than 60°, about a vertical axis, and the other two approximately midway between the previous blows, preferably on the ridge, if any.
The remaining blows are then applied in the same way, after the sample has been turned through 90° about its axis perpendicular to the plywood.

If cable entries are provided, the sample is so mounted that the two lines of blows are as nearly as possible equidistant from these entries.

Cover plates and other covers of multiple fixed socket-outlets are treated as though they were the corresponding number of separate covers, but only one blow is applied to any one point.

For splash-proof and jet-proof socket-outlets, the test is made with the lids closed and, in addition, the appropriate number of blows is applied to those parts which are exposed when the lids are open.

After the test, the samples shall show no damage within the meaning of this specification.
In case of doubt, it is verified that it is possible to remove and to replace the external parts, such as mounting boxes, enclosures, covers and cover plates, without these parts or their insulating lining breaking. If, however, a cover plate, backed by an inner cover, is broken, the test is repeated on the inner cover, which shall remain unbroken.

Small pieces may be broken off without causing rejection, provided that the protection against electric shock is not affected.
Damage to the finish and small dents which do not reduce the creepage distances or clearances below the values specified in § 27a are neglected.

c. *The samples are tested in a tumbling barrel as shown in figure 30.*

Rewirable accessories are fitted with the flexible cable or cord specified in § 23d, having the smallest cross-sectional area specified in § 11b and a free length of approximately 100 mm.
Terminal screws and assembly screws are tightened with a torque equal to two thirds of that specified in § 26a.
Non-rewirable accessories are tested as delivered, the flexible cable or cord being cut so that a free length of about 100 mm projects from the accessory.
The samples fall from a height of 50 cm onto a steel plate, 3 mm thick, the number of falls being:

1 000 if the mass of the sample without cable or cord does not exceed 100 g,
500 if the mass of the sample without cable or cord exceeds 100 g, but does not exceed 200 g,
100 if the mass of the sample without cable or cord exceeds 200 g.

The barrel is turned at a rate of five revolutions per minute, ten falls per minute thus taking place.
Only one sample is in the barrel at a time.

After the test, the samples shall show no damage within the meaning of this specification. In particular, no part shall have become detached or loosened, and the pins shall not have become so deformed that the plug fails to comply with the requirements of §§ 8 and 9b. Moreover, the pins shall not turn when a torque of 0·4 Nm is applied, first in one direction for 1 minute, and then in the opposite direction for 1 minute.

During the examination after the test, special attention is paid to the connection of the flexible cable or cord.
Small pieces may be broken off without causing rejection, provided that the protection against electric shock is not affected.
Damage to the finish and small dents which do not reduce the creepage distances or clearances below the values specified in § 27a are neglected.

d. *The bases of 10/16 A 250 V ordinary surface-type socket-outlets are first fixed to a cylinder of rigid steel sheet, having a radius of 17 cm.*

The steel sheet has two holes, 38 ± 0·15 mm apart and tapped 4 mm, for the fixing screws; the axes of the holes are in a plane perpendicular to the axis of the cylinder and parallel to the radius through the centre of the distance between the holes.
The fixing screws are gradually tightened, the maximum torque applied being 1·2 Nm.
The bases are then fixed in a similar manner to a flat steel sheet.

After the tests, the bases shall show no damage impairing their further use.

For other ordinary surface-type socket-outlets, the test is under consideration.

e. *The samples are subjected to an impact test by means of the apparatus shown in figure 31.*
The apparatus, on a pad of sponge rubber, 4 cm thick, is placed, together with the samples, in a refrigerator at a temperature of — 15 ± 2 °C, for at least 16 hours.
At the end of this period, each sample, in turn, is placed in position as shown in the figure, and the hammer is allowed to fall from a height of 10 cm.
After the test, the samples shall show no damage within the meaning of this specification.

f. *The samples are subjected to a pressure test in the manner shown in figure 32, the temperature of the pressure plate, of the base and of the samples being 20 ± 2 °C and the force applied being 300 N.*

The samples are first placed in the position shown in figure 32a, and the force is applied for 1 minute. They are then placed in the position shown in figure 32b, and again subjected to the force for 1 minute.

After the test, the samples shall show no damage within the meaning of this specification.

g. *Screwed glands are fitted with a cylindrical metal rod having a diameter, in millimetres, equal to the nearest whole number below the internal diameter of the packing, in millimetres. The glands are then tightened by means of a suitable spanner, the force shown in the following table being applied to the spanner for 1 minute, at a point 25 cm from the axis of the gland.*

Diameter of test rod — *mm*	*Force* N	
	Metal glands	*Glands of moulded material*
up to and including 20 . . .	*30*	*20*
over 20	*40*	*30*

After the test, the glands and the enclosures of the samples shall show no damage within the meaning of this specification.

h. *Plug pins provided with an insulating collar are subjected to the following test by means of an apparatus similar to that shown in figure 33.*

The test apparatus comprises a horizontally disposed beam, which is pivoted about its centre point. A short length of steel wire, 1 mm in diameter and bent into a U-shape, the base of the U being straight, is rigidly attached, at both ends, to one end of the beam, so that the straight part projects below the beam and is parallel to the axis of the beam pivot.

The plug is held in a suitable clamp in such a position that the straight part of the steel wire rests on the plug pin, at right angles to it. The pin slopes downwards at an angle of 10° to the horizontal.

The beam is loaded so that the wire exerts a force of 4 N on the pin.

The plug is caused to move backwards and forwards in a horizontal direction in the plane of the axis of the beam, so that the wire rubs along the pin. The length of pin thus abraded is approximately 9 mm, of which approximately 7 mm is over the insulating collar. The number of movements is 20 000, 10 000 in each direction, and the rate of operation is 30 movements per minute.
The test is made on one pin of each sample.
After the test, the pins shall show no damage which might affect safety or impair the further use of the plug; in particular, the insulating collar shall not have punctured or rucked up.

§ 25. RESISTANCE TO HEAT AND AGEING

a. Accessories shall be sufficiently resistant to heat.

Compliance is checked:
for plugs and single-way portable socket-outlets with enclosures, covers or bodies of elastic or thermoplastic material, by the tests of sub-clauses b and d,
for other plugs and socket-outlets and for mounting boxes by the tests of sub-clauses b and c.

A test for covers of fixed socket-outlets and multiway portable socket-outlets of elastic or thermoplastic material is under consideration.

b. The samples are kept for 1 hour in a heating cabinet at a temperature of 100 ± 5 °C.
They shall not undergo any change impairing their further use, and sealing compound shall not flow to such an extent that live parts are exposed.
Marking shall still be legible.

A slight displacement of the sealing compound is neglected.

c. *External parts of insulating material, other than rubber, thermoplastics or ceramic, are subjected to a ball-pressure test by means of the apparatus shown in figure 34.*
The surface of the part to be tested is placed in the horizontal position and a steel ball of 5 mm diameter is pressed against this surface by a force of 20 N.
The test is made in a heating cabinet at a temperature of 125 ± 5 °C.
After 1 hour, the ball is removed and the diameter of the impression measured. This diameter shall not exceed 2 mm.

d. *The samples are subjected to a pressure test by means of an apparatus similar to that shown in figure 35, the test being made in a heating cabinet at a temperature of 80 ± 2 °C.*
The apparatus comprises two steel jaws, having a cylindrical face of 25 mm radius, a width of 15 mm and a length of 50 mm. The corners are rounded with a radius of 2·5 mm.
The sample is clamped between the jaws in such a way that these press against it in the area where it is gripped in normal use, the centre line of the jaws coinciding as nearly as possible with the centre of this area.
The force applied through the jaws is 20 N.
After 1 hour, the jaws are removed and the samples shall show no damage within the meaning of this specification.

e. **Accessories with enclosures, covers or bodies of rubber, polyvinyl chloride or similar material, and parts of rubber, such as sealing rings and gaskets, shall be sufficiently resistant to ageing.**

Compliance is checked by an accelerated ageing test made in an atmosphere having the composition and pressure of the ambient air.

The samples are suspended freely in a heating cabinet, ventilated by natural circulation. The temperature in the cabinet and the duration of the ageing test are:

70 ± 2 °C and 10 days (240 hours), for rubber,
80 ± 2 °C and 7 days (168 hours), for polyvinyl chloride and similar material.

After the samples have been allowed to attain approximately room temperature, they are examined and shall show no crack visible to

the naked eye, nor shall the material have become sticky or greasy, this being judged as follows.
The sample is placed on one of the pans of a balance and the other pan is loaded with a mass equal to the mass of the sample plus 500 g. Equilibrium is then restored by pressing the sample with the fore-finger, wrapped in a dry piece of rough cloth.
No traces of the cloth shall remain on the sample and the material of the sample shall not stick to the cloth.
After the test, the samples shall show no damage which would lead to non-compliance with this specification.

The test is made on the three additional samples, which are not subjected to any other test.
The use of an electrically heated cabinet is recommended.
Natural circulation may be provided by holes in the walls of the cabinet.

§ 26. SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS

a. **Connections, electrical or otherwise, shall withstand the mechanical stresses occurring in normal use.**

Screws transmitting contact pressure and screws which are operated when connecting up the accessory and have a nominal diameter less than 4 mm, shall screw into a metal nut or metal insert.

Compliance is checked by inspection and, for screws and nuts transmitting contact pressure or which are operated when connecting up the accessory, by the following test.
The screws or nuts are tightened and loosened:
10 times for screws in engagement with a thread of insulating material,
5 times in all other cases.

Screws in engagement with a thread of insulating material are completely removed and reinserted each time.
When testing terminal screws and nuts, a conductor having the largest cross-sectional area specified in § 11b, rigid (solid or stranded) for fixed socket-outlets and flexible in all other cases, is placed in the terminal.

The test is made by means of a suitable test screwdriver, applying a torque as shown in the following table.
Column I applies to screws without heads if the screw when tightened does not protrude from the hole, or if the use of a screwdriver with a blade wider than the diameter of the screw is effectively prevented.
Column II applies to other screws and to nuts.

Nominal diameter of screw mm	*Torque* Nm	
	I	*II*
up to and including 2·8	*0·2*	*0·4*
over 2·8 up to and including 3·0	*0·25*	*0·5*
over 3·0 up to and including 3·2	*0·3*	*0·6*
over 3·2 up to and including 3·6	*0·4*	*0·8*
over 3·6 up to and including 4·1	*0·7*	*1·2*
over 4·1 up to and including 4·7	*0·8*	*1·8*
over 4·7 up to and including 5·3	*0·8*	*2·0*
over 5·3 up to and including 6·0	—	*2·5*

The conductor is moved each time the screw or nut is loosened.
During the test, terminals shall not work loose and no damage impairing the further use of the screwed connections or terminals shall occur, such as breakage of screws or damage to the head slots, threads, washers or stirrups.

Screws or nuts which are operated when connecting up the accessory include terminal screws or nuts, assembly screws, screws for fixing covers, etc., but not connections for screwed conduits and screws for fixing the base of a fixed socket-outlet.

The shape of the blade of the test screwdriver must suit the head of the screw to be tested. The screws and nuts must not be tightened in jerks.
Damage to covers is neglected.
Screwed connections will have been partially checked by the tests of §§ 21 and 24.

b. Screws in engagement with a thread of insulating material and which are operated when connecting up the accessory, shall have a length of engagement of at least 3 mm plus one third of the nominal screw diameter, or 8 mm, whichever is the shorter.

Correct introduction of the screw into the screw hole or nut shall be ensured.

Compliance is checked by inspection, by measurement and by manual test.

The requirement with regard to correct introduction is met if introduction of the screw in a slanting manner is prevented, e.g. by guiding the screw by the part to be fixed, by a recess in the female thread or by the use of a screw with the leading thread removed.

c. Electrical connections shall be so designed that contact pressure is not transmitted through insulating material other than ceramic, pure mica or other material with characteristics no less suitable, unless there is sufficient resiliency in the metallic parts to compensate for any possible shrinkage of the insulating material.

Compliance is checked by inspection.

The suitability of the material is considered in respect to the stability of the dimensions.

d. Screws and rivets, which serve as electrical as well as mechanical connections, shall be locked against loosening.

Compliance is checked by inspection and by manual test.

Spring washers may provide satisfactory locking.
For rivets, a non-circular shank or an appropriate notch may be sufficient.

Sealing compound which softens on heating provides satisfactory locking only for screw connections not subject to torsion in normal use.

e. Current-carrying parts and earthing contacts shall be either of:

copper,
an alloy containing at least 58% copper for parts worked cold, or at least 50% copper for other parts, or .

other metal no less resistant to corrosion than copper and having mechanical properties no less suitable.

This requirement does not apply to screws, nuts, washers, clamping plates and similar parts of terminals.

f. Contacts which are subjected to a sliding action in normal use shall be of a metal resistant to corrosion.

Compliance with the requirements of sub-clauses e and f is checked by inspection and by chemical analysis.

A test for determining the resistance to corrosion is under consideration.

§ 27. CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND

a. Creepage distances, clearances and distances through sealing compound shall not be less than the values in millimetres shown in the following table.

Creepage distance:	
1. between live parts of different polarity	4
2. between live parts and: accessible metal parts, parts of the earthing circuit, screws or devices for fixing bases or covers of fixed socket-outlets, external assembly screws, other than screws which are on the engagement face of plugs and are isolated from the earthing circuit	3
Clearance:	
3. between live parts of different polarity	3
4. between live parts and: accessible metal parts not listed under item 5, parts of the earthing circuit, metal frames supporting the base of flush-type socket-outlets, screws or devices for fixing bases or covers of fixed socket-outlets, external assembly screws, other than screws which are on the engagement face of plugs and are isolated from the earthing circuit	3
5. between live parts and: metal covers, if not lined with insulating material, mounting boxes, the surface on which the base of a socket-outlet is mounted	6
6. between live parts and the bottom of any conductor recess in the base of a socket-outlet	3
Distance through sealing compound:	
7. between live parts covered with at least 2 mm of sealing compound and the surface on which the base of a socket-outlet is mounted	4
8. between live parts covered with at least 2 mm of sealing compound and the bottom of any conductor recess in the base of a socket-outlet	2·5

Compliance is checked by measurement.
For rewirable accessories, the measurements are made on the sample fitted with conductors of the largest cross-sectional area specified in § 11b, and also without conductors. For non-rewirable accessories, the measurements are made on the sample as delivered.
Socket-outlets are checked when in engagement with a plug and also without a plug.
Distances through slots or openings in external parts of insulating material are measured to metal foil in contact with the accessible surface other than the engagement face of plugs; the foil is not pressed into openings.

For ordinary surface-type socket-outlets, a conduit is introduced for a distance of 1 mm into the socket-outlet, in accordance with § 12n.
If the metal frame supporting the base of flush-type socket-outlets is movable, this frame is placed in the most unfavourable position.

For 10|16 A 250 V flush-type socket-outlets, the clearance of item 5 is checked when the socket-outlet is fixed centrally in a mounting box having the minimum free space prescribed in Standard Sheet XIII. If the socket-outlet can be rotated in the box, it is placed in the most unfavourable position.

The contribution to the creepage distance of any groove less than 1 mm wide is limited to its width.
Any air gap less than 1 mm wide is ignored in computing the total clearance.

The surface on which the base of a socket-outlet is mounted includes any surface with which the base is in contact when the socket-outlet is installed. If the base is provided with a metal plate at the back, this plate is not regarded as the mounting surface.

b. **Sealing compound shall not protrude above the edge of the cavity in which it is contained.**

c. **Ordinary surface-type socket-outlets shall not have bare current-carrying strips at the back.**

Compliance with the requirements of sub-clauses b and c is checked by inspection.

§ 28. RESISTANCE OF INSULATING MATERIAL TO HEAT, FIRE AND TRACKING

a. **External parts of insulating material shall be resistant to abnormal heat and to fire.**

Compliance is checked by a test made with an electrically heated conical mandrel in an apparatus as shown in figure 36.

The mandrel is inserted into a conical hole reamed in the part to be tested in such a way that portions of the conical part of the mandrel of equal length protrude from both sides. The sample is pressed against the mandrel with a force of 12 N. When testing parts for which the prescribed mandrel temperature is 300 °C, the means by which the force is applied is locked to prevent any further movement.

The mandrel is heated to the following temperature in approximately 3 minutes:

500 °C for external parts of fixed socket-outlets, which support live parts,

300 °C for other external parts.

The temperature is maintained within 10 °C of this value for 2 minutes and is measured by means of a thermocouple inside the mandrel where it is in contact with the sample.

During the test, sparks of about 6 mm in length are produced at the upper surface of the sample where the mandrel protrudes, by means of a high-frequency spark generator.
Gases produced during the heating shall not be ignited by the sparks.

During the test at 500 °C, the samples shall not move on the mandrel by more than 2 mm.

The test is not made on parts of ceramic material.
For the purpose of this test, bases of ordinary fixed socket-outlets are deemed to be external parts.
Provisionally, external parts of rubber or thermoplastic material of non-rewirable accessories are not subjected to the test.
A revision of this test is under consideration.

b. **Insulating parts supporting, or in contact with, live parts of splash-proof and jet-proof accessories shall be of material resistant to tracking.**

For materials other than ceramic, compliance is checked by the following test.
A flat surface of the part to be tested, if possible at least 15 mm × 15 mm, is placed in the horizontal position.
Two electrodes of platinum or other sufficiently non-corrodible material, with the dimensions shown in figure 37, are placed on the surface of the sample in the manner shown in this figure, so that the rounded edges are in contact with the sample over their whole length.
The force exerted on the surface by each electrode is about 1 N.
The electrodes are connected to a 50 c/s supply source having a voltage of 175 V of substantially sine-wave form. The total impedance of the circuit when the electrodes are short-circuited is adjusted by means of a variable resistor, so that the current is 1·0 ± 0·1 A with cos φ = 0·9 to 1. An overcurrent relay, with a tripping time of at least 0·5 second, is included in the circuit.

The surface of the sample is wetted by allowing drops of a solution of ammonium chloride in distilled water to fall centrally between the electrodes. The solution has a volume resistivity of 400 Ωcm at 25 °C, corresponding to a concentration of about 0·1%. The drops have a volume of 20 $^{+5}_{0}$ mm³ and fall from a height of 30 to 40 mm.
The time interval between one drop and the next is 30 ± 5 seconds.

No flashover or breakdown between electrodes shall occur before a total of 50 drops has fallen.

Care is taken that the electrodes are clean, correctly shaped and correctly positioned before each test is started.
In case of doubt, the test is repeated, if necessary on a new set of samples.

A revision of this test is under consideration.

§ 29. RESISTANCE TO RUSTING

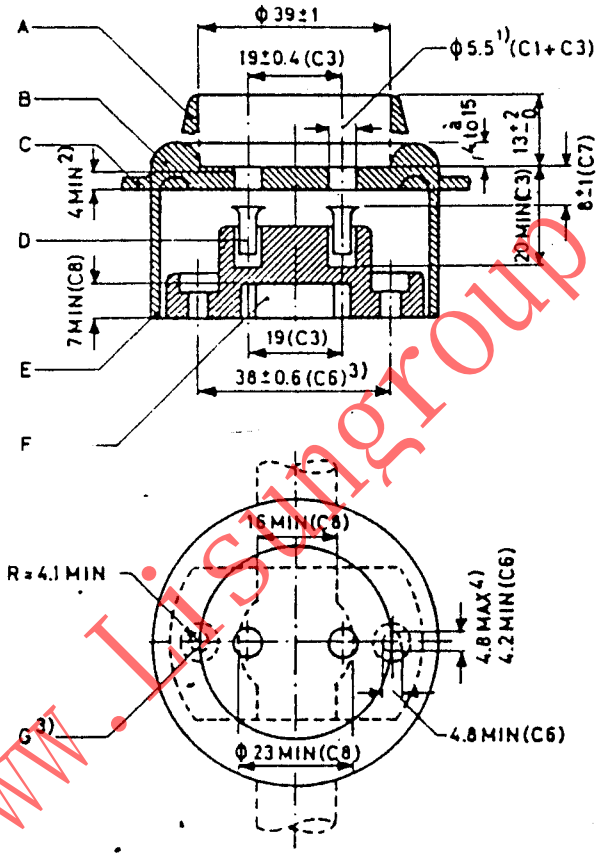
Ferrous parts, including covers and mounting boxes for flush-type socket-outlets, shall be adequately protected against rusting.

Compliance is checked by the following test.
All grease is removed from the parts to be tested, by immersion in carbon-tetrachloride for 10 minutes. The parts are then immersed

for 10 minutes in a 10% solution of ammonium chloride in water at a temperature of 20 ± 5 °C.
Without drying, but after shaking off any drops, the parts are placed for 10 minutes in a box containing air saturated with moisture at a temperature of 20 ± 5 °C.
After the parts have been dried for 10 minutes in a heating cabinet at a temperature of 100 ± 5 °C, their surfaces shall show no signs of rust.

Traces of rust on sharp edges and any yellowish film removable by rubbing are ignored.
For small helical springs and the like, and for inaccessible parts exposed to abrasion, a layer of grease may provide sufficient protection against rusting. Such parts are only subjected to the test if there is doubt about the effectiveness of the grease film, and the test is then made without previous removal of the grease.

FEUILLE DE NORMALISATION I	CEE 7	STANDARD SHEET I
SOCLE ET PRISE MOBILE BIPOLAIRES 10/16 A 250 V SANS CONTACT DE TERRE		10/16 A 250 V TWO-POLE SOCKET-OUTLET WITHOUT EARTHING CONTACT



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION I	CEE 7	STANDARD SHEET I
Suite		Continuation

A. Collerette de protection des prises mobiles simples.

B. Collerette de protection des socles.

C. Socles pour pose encastrée.

D. Alvéoles élastiques entre 3,5 et 5,1 mm (C_1 et C_3). Ils peuvent être de forme autre que tubulaire.

E. Socles pour pose en saillie.

F. Passage des conducteurs (voir la figure 8).

G. Trou ou encoche de fixation (voir la figure 6).

1) Tolérance + 0,3 mm pour matière moulée et + 0,5 mm pour matière céramique.

2) Longueur de la partie cylindrique des orifices d'entrée des broches de fiches.

3) Ne s'applique qu'aux socles simples pour pose en saillie.

4) L'écart entre les axes de symétrie des alvéoles et des trous ou encoches de fixation ne doit pas dépasser 1 mm. Comme variante, il est admis que les alvéoles se trouvent placés suivant un plan normal au plan passant par les axes des trous ou encoches de fixation.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les collerettes de protection des socles multiples peuvent être interrompues sur une longueur ne dépassant pas 10 mm dans leur partie commune, pourvu que le rayon passant par le centre de la zone interrompue soit perpendiculaire au plan des alvéoles de chacun des socles constitutifs.

Des orifices supplémentaires d'entrée des broches de petites fiches non normalisées sont admis si tous les alvéoles sont alimentés par un transformateur de sécurité incorporé dans le socle. Dans ce cas, la collerette de protection est facultative.

Les dessins ne préjugent pas les détails non cotés.

Mai 1963

A. Protecting rim of portable single-way socket-outlets.

B. Protecting rim of fixed socket-outlets.

C. Flush-type socket-outlets.

D. Contact tubes resilient between 3·5 and 5·1 mm (C_1 and C_3). They may have a shape other than tubular.

E. Surface-type socket-outlets.

F. Wiring channel (see figure 8).

G. Fixing hole or slot (see figure 6).

1) Tolerance + 0·3 mm for moulded material and + 0·5 mm for ceramic material.

2) Length of cylindrical part of entry holes for plug pins.

3) Only applicable to single-way surface-type socket-outlets.

4) The distance between centre lines of contact tubes and of fixing holes or slots shall not exceed 1 mm. Alternatively, the contact tubes may be placed so that the centre line of the contact tubes is perpendicular to the centre line of the fixing holes or slots.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

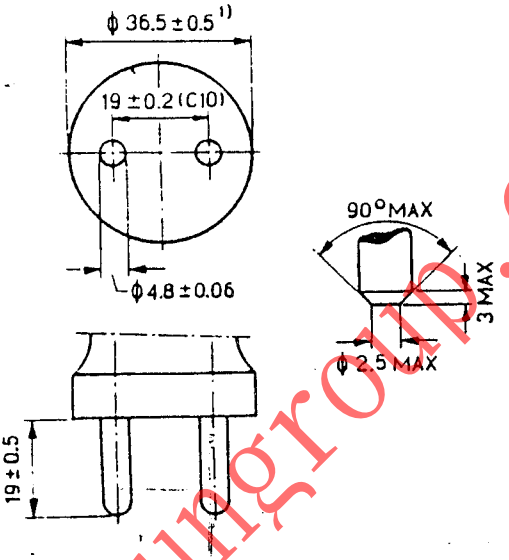
The protecting rims of multiple fixed socket-outlets may be interrupted for a length not exceeding 10 mm where two rims coincide, provided that the radius to the centre of the interruption is at right angles to the plane of the contact tubes of each socket-outlet.

Additional entry holes for the pins of small non-standard plugs may be provided if all contact tubes are supplied through a safety isolating transformer incorporated in the socket-outlet. In this case, the protecting rim is optional.

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

May 1963

FEUILLE DE NORMALISATION II	CEE 7	STANDARD SHEET II
FICHE BIPOLAIRE 10/16 A 250 V SANS CONTACT DE TERRE		10/16 A 250 V TWO-POLE PLUG WITHOUT EARTHING CONTACT



DIMENSIONS EN mm

1) Cette dimension constitue un maximum sur une hauteur de 15 mm à partir de la surface d'engagement de la fiche.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les fiches doivent avoir une forme et une longueur permettant de les saisir aisément avec les doigts lorsqu'elles sont retirées d'un socle ou d'une prise mobile conformes à la feuille de normalisation I.

L'extrémité des broches doit être arrondie, ou tronconique comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

Mai 1963

DIMENSIONS IN mm

1) This dimension shall not be exceeded within a distance of 15 mm from the engagement face of the plug.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

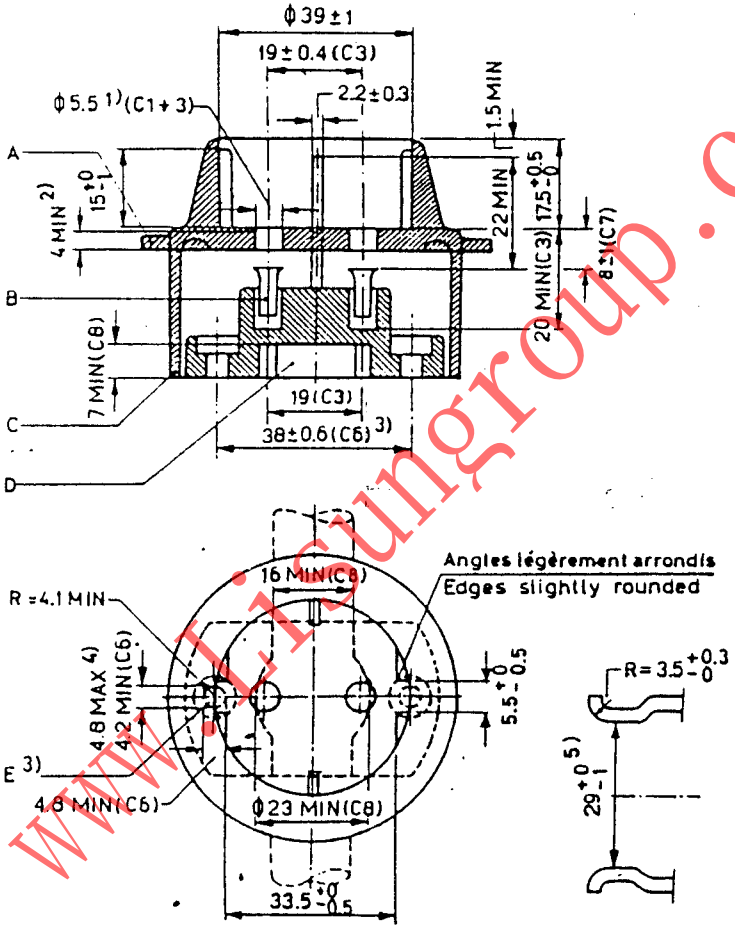
The plugs shall be of such shape and length as will enable them to be easily withdrawn by hand from a socket-outlet complying with Standard Sheet I.

Pin ends shall be rounded, or conical as shown in detail sketch.

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

May 1963

FEUILLE DE NORMALISATION III	CEE 7	STANDARD SHEET III
SOCLE ET PRISE MOBILE BIPOLAIRES 10/16 A 250 V AVEC CONTACTS LATERAUX DE TERRE		10/16 A 250 V TWO-POLE SOCKET-OUTLET WITH SIDE EARTHING-CONTACTS



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION III	CEE 7	STANDARD SHEET III
Suite		Continuation

A. Socles pour pose encastrée.

B. Alvéoles élastiques entre 3,5 et 5,1 mm (C_1 et C_2). Ils peuvent être de forme autre que tubulaire.

C. Socles pour pose en saillie.

D. Passage des conducteurs (voir la figure 8).

E. Trou ou encoche de fixation (voir la figure 6).

1) Tolérance + 0,3 mm pour matière moulée et + 0,5 mm pour matière céramique.

2) Longueur de la partie cylindrique des orifices d'entrée des broches de fiches.

3) Ne s'applique qu'aux socles simples pour pose en saillie.

4) L'écart entre les [illegible] de symétrie des alvéoles et des trous ou encoches de fixation ne doit pas dépasser 1 mm. Comme variante, il est admis que les alvéoles se trouvent placés suivant un plan normal au plan passant par les axes des trous ou encoches de fixation.

5) Cette dimension s'applique aux contacts de terre dans leur position normale de repos. Ils doivent, toutefois, avoir une élasticité suffisante pour permettre une séparation jusqu'à une distance de 33 mm.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les dessins ne préjugent pas les détails non cotés.

A. Flush-type socket-outlets.

B. Contact tubes resilient between 3·5 and 5·1 mm (C_1 and C_2). They may have a shape other than tubular.

C. Surface-type socket-outlets.

D. Wiring channel (see figure 8).

E. Fixing hole or slot (see figure 6).

1) Tolerance + [illegible] mm for moulded material and + 0·5 mm for ceramic material.

2) Length of cylindrical part of entry holes for plug pins.

3) Only applicable to single-way surface-type socket-outlets.

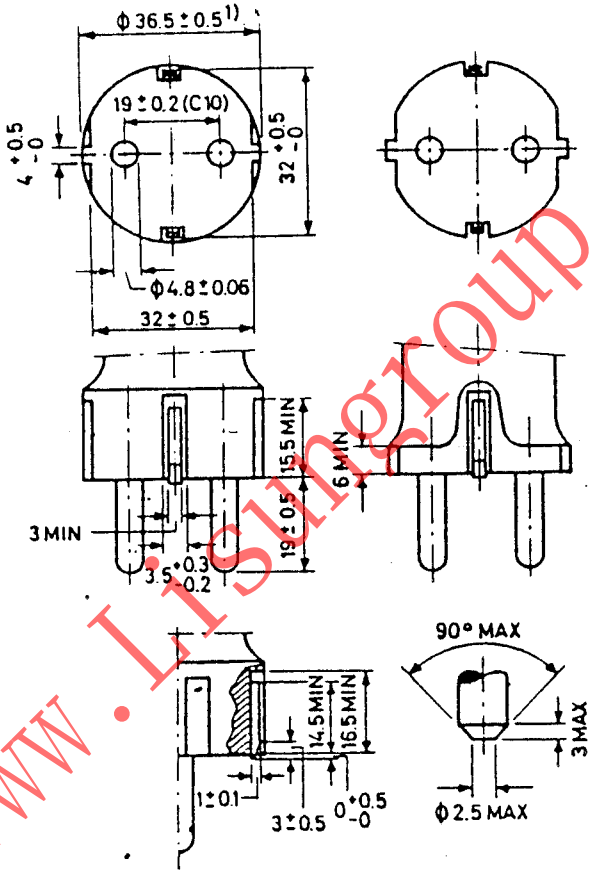
4) The distance between centre lines of contact tubes and of fixing holes or slots shall not exceed 1 mm. Alternatively, the contact tubes may be placed so that the centre line of the contact tubes is perpendicular to the centre line of the fixing holes or slots.

5) This dimension applies to the earthing contacts in their normal position of rest. They shall, however, have sufficient resiliency to allow separation to a distance of 33 mm.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

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

FEUILLE DE NORMALISATION IV	CEE 7	STANDARD SHEET IV
FICHE BIPOLAIRE 10/16 A 250 V AVEC CONTACTS LATERAUX DE TERRE		10/16 A 250 V TWO-POLE PLUG WITH SIDE EARTHING-CONTACTS



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION IV	CEE 7	STANDARD SHEET IV
Suite		Continuation

1) Cette dimension constitue un maximum sur une hauteur de 18 mm à partir de la surface d'engagement de la fiche.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les fiches doivent avoir une forme et une longueur permettant de les saisir aisément avec les doigts lorsqu'elles sont retirées d'un socle ou d'une prise mobile conformes à la feuille de normalisation III.

Les nervures latérales doivent avoir des angles légèrement arrondis. Elles peuvent ne pas être continues sur toute leur hauteur, mais doivent avoir une hauteur de 6 mm au moins à partir de la surface d'engagement de la fiche.

L'extrémité des broches doit être arrondie, ou tronconique comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

1) This dimension shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

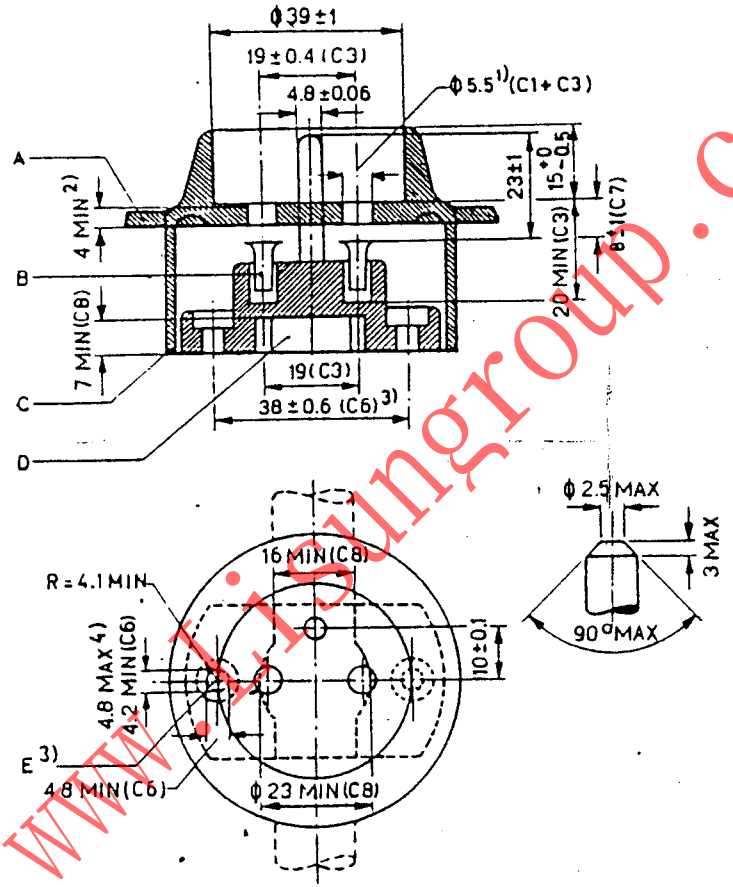
The plugs shall be of such shape and length as will enable them to be easily withdrawn by hand from a socket-outlet complying with Standard Sheet III.

The side ridges shall have slightly rounded edges. They may be interrupted, but shall begin at the engagement face of the plug and continue for at least 6 mm.

Pin ends shall be rounded, or conical as shown in detail sketch.

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

FEUILLE DE NORMALISATION V	CEE 7	STANDARD SHEET V
SOCLE ET PRISE MOBILE BIPOLAIRES 10/16 A 250 V AVEC CONTACT MEDIAN DE TERRE		10/16 A 250 V TWO-POLE SOCKET-OUTLET WITH PIN-TYPE EARTHING-CONTACT



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION V	CEE 7	STANDARD SHEET V
Suite		Continuation

A. Socles pour pose encastrée.

B. Alvéoles élastiques entre 3.5 et 5.1 mm (C_4 et C_5). Ils peuvent être de forme autre que tubulaire.

C. Socles pour pose en saillie.

D. Passage des conducteurs (voir la figure 8).

E. Trou ou encoche de fixation (voir la figure 6).

1) Tolérance + 0.3 mm pour matière moulée et + 0.5 mm pour matière céramique.

2) Longueur de la partie cylindrique des orifices d'entrée des broches de fiches.

3) Ne s'applique qu'aux socles simples pour pose en saillie.

4) L'écart entre les axes de symétrie des alvéoles et des trous ou encoches de fixation ne doit pas dépasser 1 mm. Comme variante, il est admis que les alvéoles se trouvent placés suivant un plan normal au plan passant par les axes des trous ou encoches de fixation.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

L'extrémité de la broche doit être arrondie, ou tronconique comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

A. Flush-type socket-outlets.

B. Contact tubes resilient between 3·5 and 5·1 mm (C_4 and C_5). They may have a shape other than tubular.

C. Surface-type socket-outlets.

D. Wiring channel (see figure 8).

E. Fixing hole or slot (see figure 6).

1) Tolerance + 0·3 mm for moulded material and + 0·5 mm for ceramic material.

2) Length of cylindrical part of entry holes for plug pins.

3) Only applicable to single-way surface-type socket-outlets.

4) The distance between centre lines of contact tubes and of fixing holes or slots shall not exceed 1 mm. Alternatively, the contact tubes may be placed so that the centre line of the contact tubes is perpendicular to the centre line of the fixing holes or slots.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

Pin end shall be rounded, or conical as shown in detail sketch.

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

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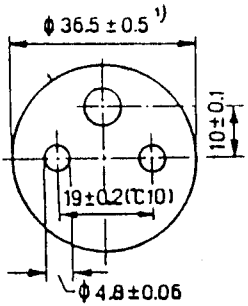
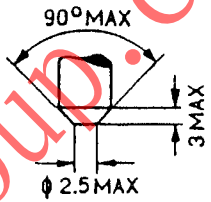
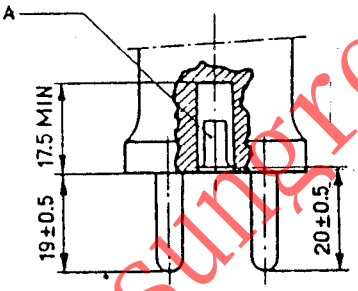
FEUILLE DE NORMALISATION VI	CEE 7	STANDARD SHEET VI
FICHE BIPOLAIRE 10/16 A 250 V AVEC CONTACT MEDIAN DE TERRE		10/16 A 250 V TWO-POLE PLUG WITH PIN-TYPE EARTHING-CONTACT







DIMENSIONS EN mm

DIMENSIONS IN mm

A. Alvéole élastique entre 4,3 et 5,1 mm (C_4 et C_{11}). Il peut être de forme autre que tubulaire.

1) Cette dimension constitue un maximum sur une hauteur de 15 mm à partir de la surface d'engagement de la fiche.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les fiches doivent avoir une forme et une longueur permettant de les saisir aisément avec les doigts lorsqu'elles sont retirées d'un socle ou d'une prise mobile conformes à la feuille de normalisation V.

L'extrémité des broches doit être arrondie, ou tronconique comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

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A. Contact tube resilient between 4·3 and 5·1 mm (C_4 and C_{11}). It may have a shape other than tubular.

1) This dimension shall not be exceeded within a distance of 15 mm from the engagement face of the plug.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

The plugs shall be of such shape and length as will enable them to be easily withdrawn by hand from a socket-outlet complying with Standard Sheet V.

Pin ends shall be rounded, or conical as shown in detail sketch.

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

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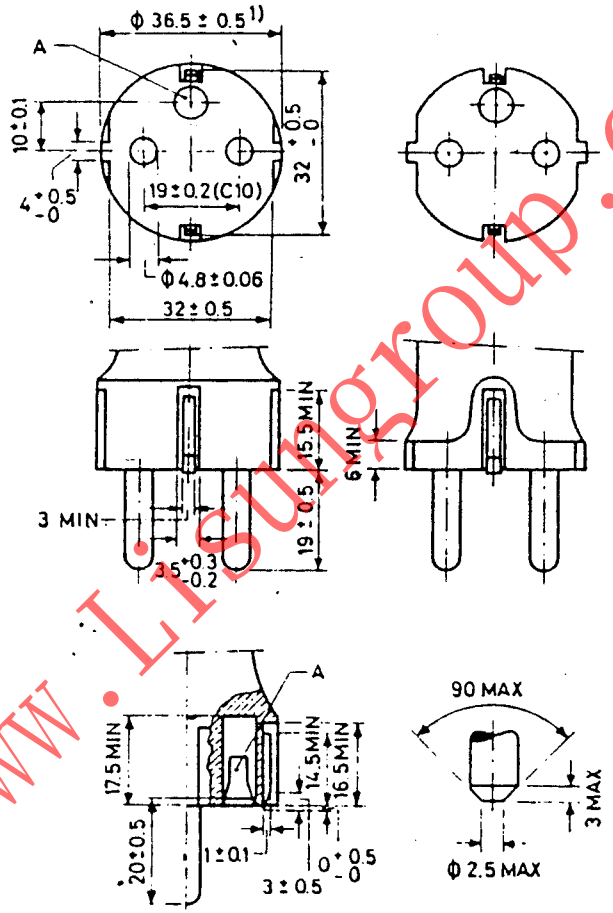
FEUILLE DE NORMALISATION VII	CEE 7	STANDARD SHEET VII
FICHE BIPOLAIRE 10/16 A 250 V AVEC DOUBLE SYSTEME DE CONTACTS DE TERRE		10/16 A 250 V TWO-POLE PLUG WITH DUAL EARTHING-CONTACTS



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION VII	CEE 7	STANDARD SHEET VII
Suite		Continuation

A. Alvéole élastique entre 4,3 et 5,1 mm (C_s et C_{11}). Il peut être de forme autre que tubulaire.

1) Cette dimension constitue un maximum sur une hauteur de 18 mm à partir de la surface d'engagement de la fiche.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les fiches doivent avoir une forme et une longueur permettant de les saisir aisément avec les doigts lorsqu'elles sont retirées d'un socle ou d'une prise mobile conformes aux feuilles de normalisation III ou V.

Les nervures latérales doivent avoir des angles légèrement arrondis. Elles peuvent ne pas être continues sur toute leur hauteur, mais doivent avoir une hauteur de 6 mm au moins à partir de la surface d'engagement de la fiche.

L'extrémité des broches doit être arrondie, ou tronconique comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

A. Contact tube resilient between 4·3 and 5·1 mm (C_s and C_{11}). It may have a shape other than tubular.

1) This dimension shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

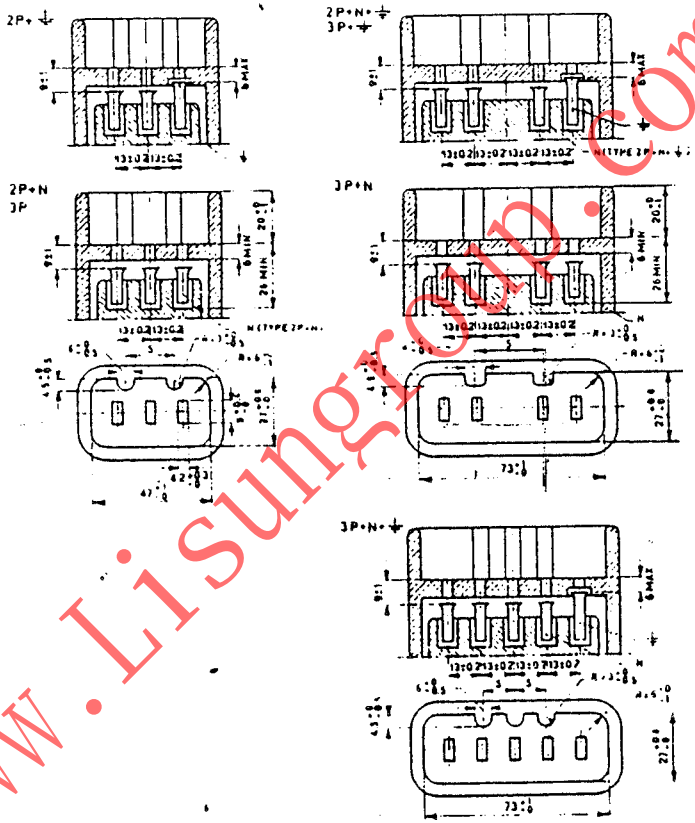
The plugs shall be of such shape and length as will enable them to be easily withdrawn by hand from a socket-outlet complying with Standard Sheet III or V.

The side ridges shall have slightly rounded edges. They may be interrupted, but shall begin at the engagement face of the plug and continue for at least 6 mm.

Pin ends shall be rounded, or conical as shown in detail sketch.

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

FEUILLE DE NORMALISATION VIII	CEE 7	STANDARD SHEET VIII
SOCLES ET PRISES MOBILES 16 A 250/380 V ET 16 A 380 V		16 A 250/380 V AND 16 A 380 V SOCKET-OUTLETS



DIMENSIONS EN mm

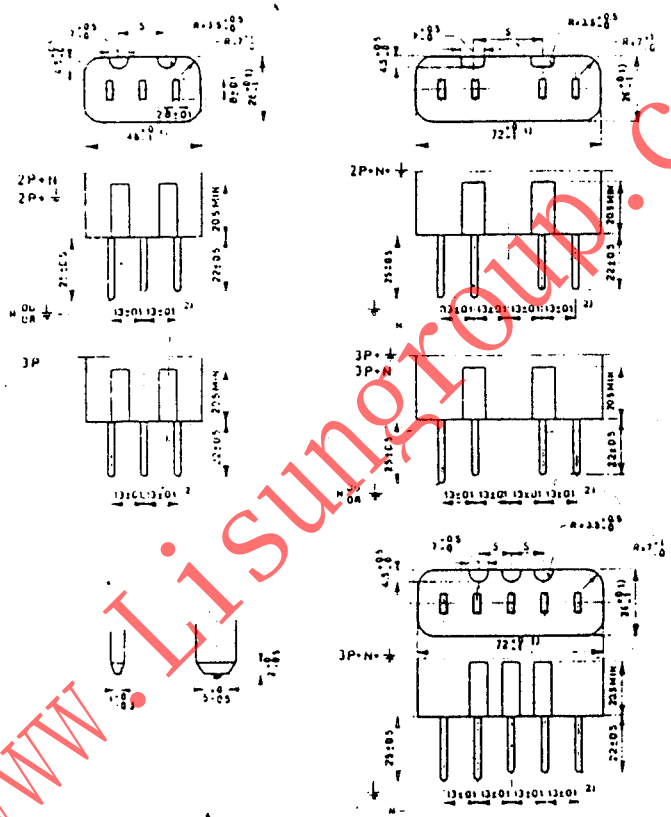
DIMENSIONS IN mm

Type	Tension nominale / Rated voltage	S
2 P + ⏚	250 V ⎓ 380 V ∿	13 ± 0.2
2 P + N	380 V ∿	19 ± 0.2
3 P	380 V ∿	25 ± 0.2
2 P + N + ⏚	380 V ∿	11 ± 0.2
3 P + ⏚	380 V ∿	17 ± 0.2
3 P + N	380 V ∿	27 ± 0.2
3 P + N + ⏚	380 V ∿	12.5 ± 0.2

Les dessins ne préjugent pas les détails non cotés.

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

FEUILLE DE NORMALISATION IX	CEE 7	STANDARD SHEET IX
FICHES 16 A 250/380 V ET 16 A 380 V		16 A 250/380 V AND 16 A 380 V PLUGS



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION IX	CEE	STANDARD SHEET IX
Suite	7	Continuation

Type	Tension nominale Rated voltage	S
2 P + ⏚	250 V ⎓ 380 V ∿	13 ± 0.2
2 P + N	380 V ∿	19 ± 0.2
3 P	380 V ∿	25 ± 0.2
2 P + N + ⏚	380 V ∿	11 ± 0.2
3 P + ⏚	380 V ∿	17 ± 0.2
3 P + N	380 V ∿	27 ± 0.2
3 P + N + ⏚	380 V ∿	12.5 ± 0.2

1) Ces dimensions constituent des maximums sur une hauteur de 20,5 mm à partir de la surface d'engagement de la fiche.

2) Les broches peuvent être flottantes.

L'extrémité des broches doit être arrondie, ou chanfreinée comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

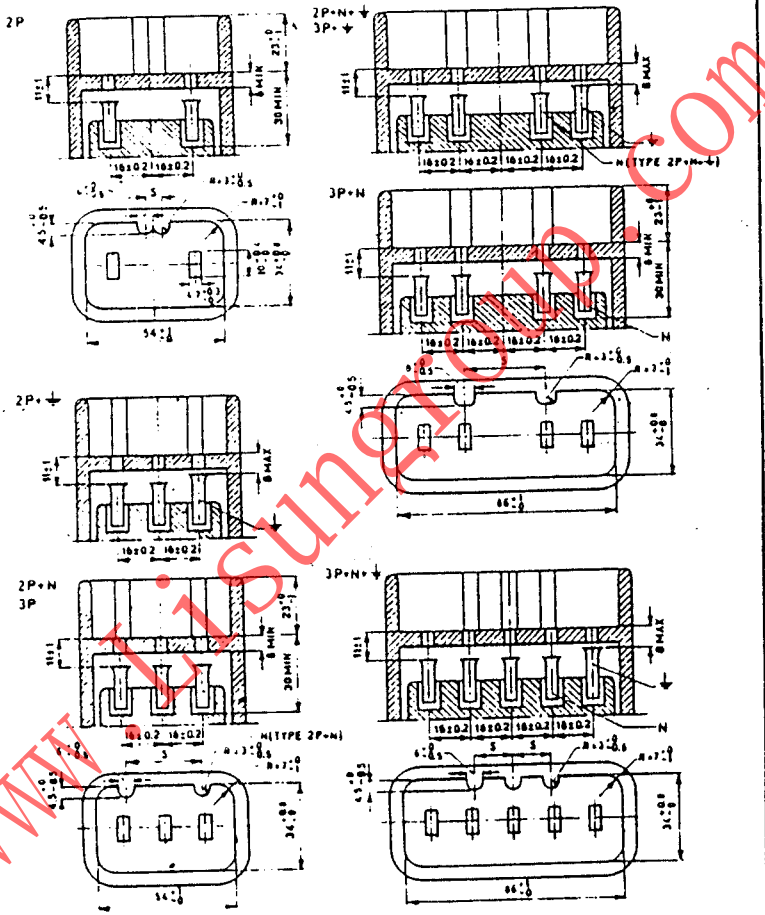
1) These dimensions shall not be exceeded within a distance of 20·5 mm from the engagement face of the plug.

2) Pins may be floating.

Pin ends shall be rounded, or chamfered as shown in detail sketch.

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

FEUILLE DE NORMALISATION X	CEE 7	STANDARD SHEET X
SOCLES ET PRISES MOBILES 25 A 380 V		25 A 380 V SOCKET-OUTLETS



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION ×	CEE 7	STANDARD SHEET ×
Suite		Continuation

Type	S
2 P	6 ± 0.1
2 P + ⏚	16 ± 0.2
2 P + N	23 ± 0.2
3 P	30 ± 0.2
2 P + N + ⏚	14 ± 0.2
3 P + ⏚	21 ± 0.2
3 P + N	32 ± 0.2
3 P + N + ⏚	15 ± 0.2

Les dessins ne préjugent pas les détails non - cotés.

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

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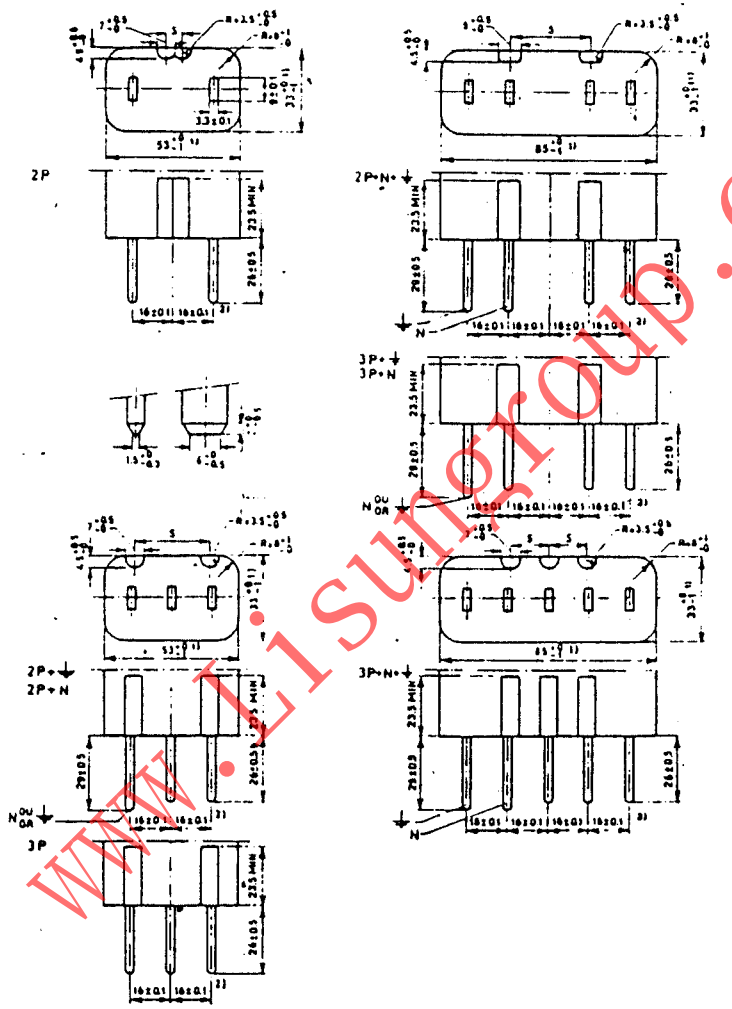
FEUILLE DE NORMALISATION XI	CEE 7	STANDARD SHEET XI
FICHES 25 A 380 V		25 A 380 V PLUGS



DIMENSIONS EN mm

DIMENSIONS IN mm

Type	S
2P	6 ± 0.1
2P + ⏚	16 ± 0.2
2P + N	23 ± 0.2
3P	30 ± 0.2
2P + N + ⏚	14 ± 0.2
3P + ⏚	21 ± 0.2
3P + N	32 ± 0.2
3P + N + ⏚	15 ± 0.2

1) Ces dimensions constituent des maximums sur une hauteur de 23,5 mm à partir de la surface d'engagement de la fiche.

2) Les broches peuvent être flottantes.

L'extrémité des broches doit être arrondie, ou chanfreinée comme indiqué sur la figure de détail.

Les dessins ne préjugent pas les détails non cotés.

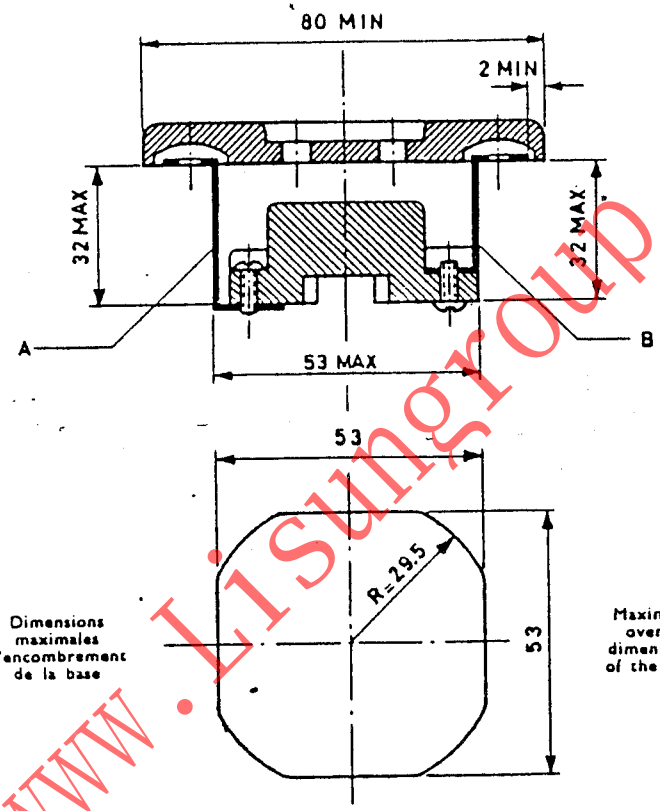
1) These dimensions shall not be exceeded within a distance of 23·5 mm from the engagement face of the plug.

2) Pins may be floating.

Pin ends shall be rounded, or chamfered as shown in detail sketch.

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

FEUILLE DE NORMALISATION XII	CEE	STANDARD SHEET XII
SOCLE BIPOLAIRE 10/16 A 250 V POUR POSE ENCASTREE A FIXATION PAR VIS	7	10/16 A 250 V TWO-POLE FLUSH-TYPE SOCKET-OUTLET FOR SCREW FIXING



DIMENSIONS EN mm

A, B. Exemples de réalisation pour l'armature.

DIMENSIONS IN mm

A, B. Examples of designs for supporting frame.

Les trous de fixation dans l'armature doivent être tels que les socles puissent être fixés dans des boîtes dont l'entr'axe des trous pour les vis a une valeur quelconque comprise entre 59,5 et 60,5 mm.

Les dimensions non indiquées sont celles figurant sur les feuilles de normalisation I, III ou V, sauf que les dimensions des trous ou encoches de fixation dans la base et du passage des conducteurs ne s'appliquent pas.

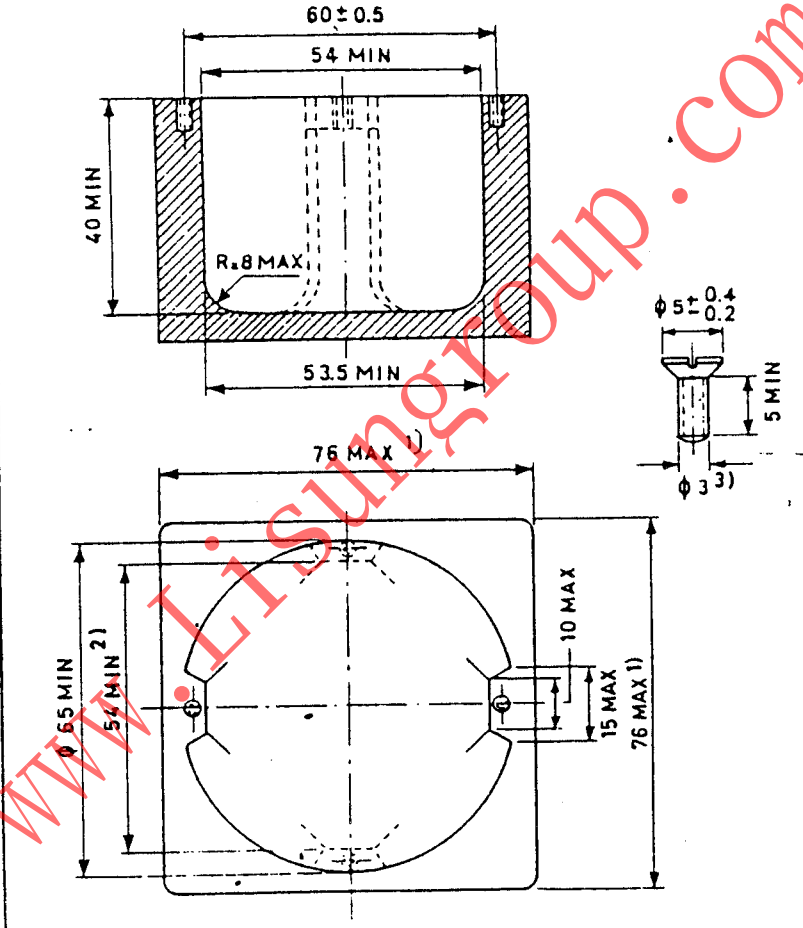
Les dessins ne préjugent pas les détails non cotés.

The fixing holes in the supporting frame shall be such that the socket-outlets can be fixed in boxes with screw holes spaced at any distance between centres from 59·5 to 60·5 mm.

Dimensions not shown are equal to those given in Standard Sheet I, III or V, except that the dimensions of the fixing holes or slots in the base and of the wiring channel do not apply.

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

FEUILLE DE NORMALISATION XIII	CEE 7	STANDARD SHEET XIII
BOITE D'ENCASTREMENT POUR SOCLES BIPOLAIRES 10/16 A 250 V POUR POSE ENCASTREE A FIXATION PAR VIS		MOUNTING BOX FOR 10/16 A 250 V TWO-POLE FLUSH-TYPE SOCKET-OUTLETS FOR SCREW FIXING



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION XIII	CEE	STANDARD SHEET XIII
Suite	7	Continuation

1) Cette dimension constitue un maximum sur une profondeur de 10 mm à partir du bord de la boîte.

2) Cette dimension doit être maintenue jusqu'à une profondeur d'au moins 32 mm à partir du bord de la boîte.

3) Filetage conforme au § 11c.

La matière de la boîte n'est pas prescrite; toutefois, si elle est en tôle, l'épaisseur minimale est de 1 mm.

Nombre de talons-supports: 2 ou 4.

Pour les boîtes en matière isolante, tous les talons peuvent aller jusqu'au fond de la boîte.

Pour les boîtes en métal, deux talons peuvent aller jusqu'au fond de la boîte; les deux autres, éventuellement prévus, ne doivent pas descendre au-delà de 7 mm à partir du bord de la boîte.

La face d'appui de deux talons-supports doit être de niveau avec le bord de la boîte, mais peut avoir un logement pour la tête de la vis de fixation d'au plus 2 mm de profondeur.

Il est admis que le niveau de la face d'appui des deux talons supplémentaires soit réglable, pourvu qu'il puisse être amené en coïncidence avec le niveau du bord de la boîte.

Les trous de fixation et les vis doivent être tels que les vis puissent être vissées jusqu'à ce que leur tête touche le talon-support.

Une entrée de conducteurs au moins doit être disposée perpendiculairement à l'axe passant par une paire de talons-supports.

Les dimensions autres que la cote 76 MAX et les dimensions des vis, sont vérifiées par le calibre représenté sur la figure 14.

Les dessins ne préjugent pas les détails non cotés.

1) This dimension shall not be exceeded within a depth of 10 mm from the top of the box.

2) This dimension shall be maintained for a depth of at least 32 mm from the top of the box.

3) Thread complying with § 11c.

The material of the box is not prescribed, but if it is sheet steel, the minimum thickness is 1 mm.

Number of fixing lugs: 2 or 4.

For boxes of insulating material, all lugs may extend to the full depth of the box.

For metal boxes, two lugs may extend to the full depth of the box; the other two, when provided, shall not extend more than 7 mm below the top of the box.

The supporting face of two fixing lugs shall be flush with the top of the box, but may be countersunk or recessed for the head of the fixing screw to a maximum depth of 2 mm.

The level of the supporting face of the two additional lugs may be adjustable, provided that it can be adjusted to be flush with the top of the box.

Fixing holes and screws shall be such that the screws can be screwed home until their heads come into contact with the fixing lugs.

At least one cable entry shall be at right angles to the centre line through a pair of fixing lugs.

The dimensions other than the dimension 76 MAX and the dimensions of the screws, are checked by the gauge shown in figure 14.

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

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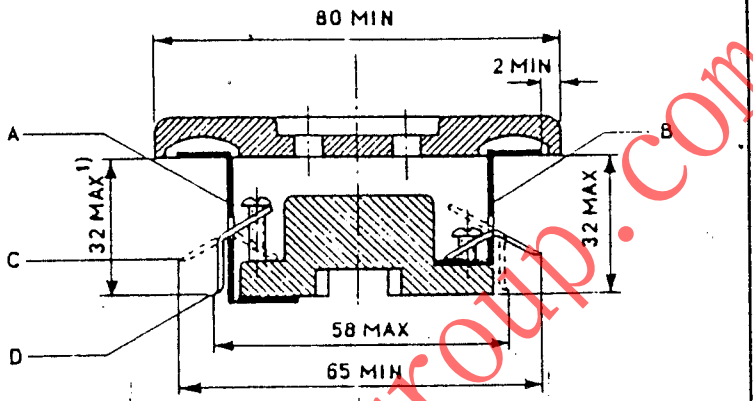
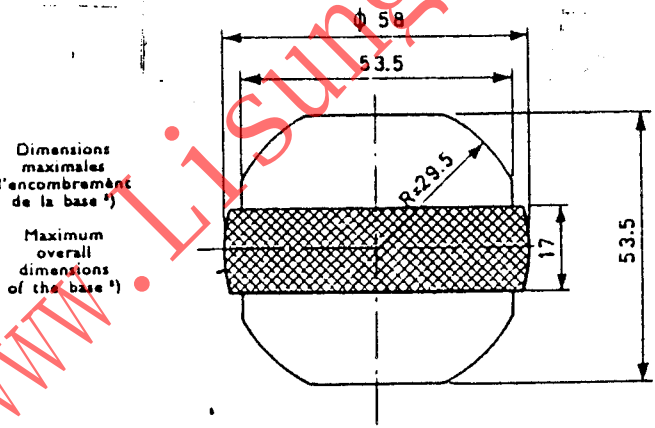
FEUILLE DE NORMALISATION XIV	CEE 7	STANDARD SHEET XIV
SOCLE BIPOLAIRE 10/16 A 250 V POUR POSE ENCASTREE A FIXATION PAR GRIFFES		10/16 A 250 V TWO-POLE FLUSH-TYPE SOCKET-OUTLET FOR CLAW FIXING





DIMENSIONS EN mm

A, B. Exemples de réalisation pour l'armature.

C. Position ouverte des griffes.

D. Position fermée des griffes.

DIMENSIONS IN mm

A, B. Examples of designs for supporting frame.

C. Claws extended.

D. Claws lowered.

FEUILLE DE NORMALISATION XIV	CEE	STANDARD SHEET XIV
Suite	7	Continuation

1) Lorsque la distance entre les extrémités des griffes est de 60 mm, ces extrémités doivent satisfaire à cette dimension.

2) De chaque côté de la base, il doit être prévu un espace suffisant pour un seul conducteur ayant un diamètre extérieur de 5,0 mm, pour chaque borne, et la conception de la base doit être telle que de chaque côté les conducteurs puissent être facilement raccordés à la borne correspondante. Les passages éventuels empruntés par les conducteurs doivent se trouver à l'extérieur de la zone quadrillée et, lorsque les conducteurs se trouvent dans l'espace prévu, le contour de la base et les conducteurs doivent se trouver à l'intérieur de la limite indiquée.

Les dimensions non indiquées sont celles figurant sur les feuilles de normalisation I, III ou V, sauf que les dimensions des trous ou encoches de fixation dans la base et du passage des conducteurs ne s'appliquent pas.

Les dessins ne préjugent pas les détails non cotés.

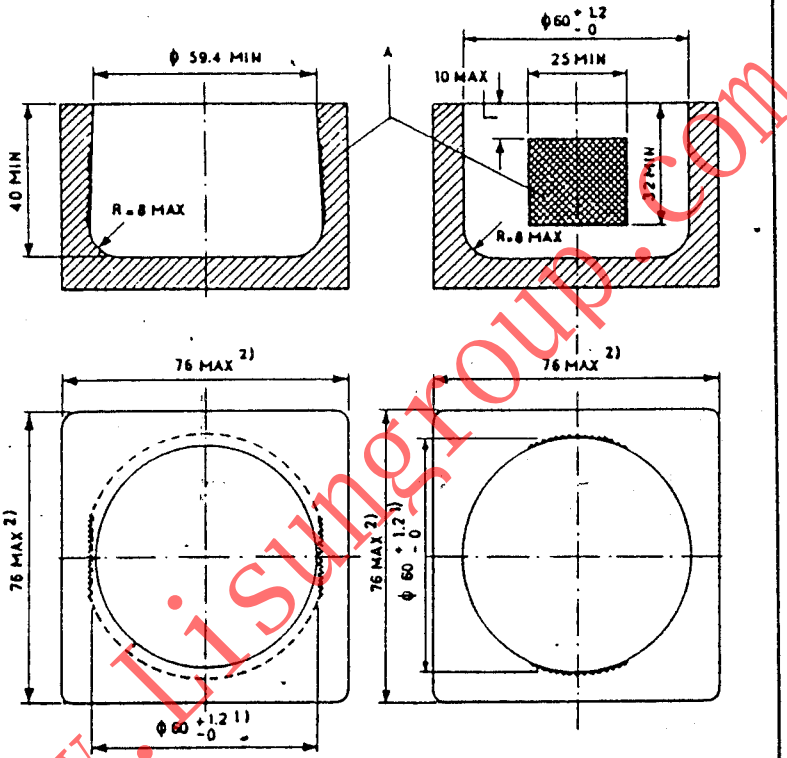
1) When the extreme points of the claws are 60 mm apart, these points shall comply with this dimension.

2) On each side of the base, there shall be sufficient space for one conductor having an overall diameter of 5·0 mm, for each terminal, and the design of the base shall be such that the conductors from either side can be easily connected to the relevant terminal. The wireways, if any, shall not be within the cross-hatched area and, when the conductors are in the space provided, the outline of the base and the conductors shall lie within the boundary shown.

Dimensions not shown are equal to those given in Standard Sheet I, III or V, except that the dimensions of the fixing holes or slots in the base and of the wiring channel do not apply.

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

FEUILLE DE NORMALISATION XV	CEE 7	STANDARD SHEET XV
BOITE D'ENCASTREMENT POUR SOCLES BIPOLAIRES 10/16 A 250 V POUR POSE ENCASTREE A FIXATION PAR GRIFFES		MOUNTING BOX FOR 10/16 A 250 V TWO-POLE FLUSH-TYPE SOCKET-OUTLETS FOR CLAW FIXING



DIMENSIONS EN mm

A. Zone gaufrée pour l'ancrage des griffes. Les dessins montrent des variantes avec zones gaufrées plane et cylindrique.

1) Distance entre centres des zones gaufrées.

2) Cette dimension constitue un maximum sur une profondeur de 10 mm à partir du bord de la boîte.

DIMENSIONS IN mm

A. Knurled area for holding the claws. The sketches show alternative designs having flat and cylindrical knurled areas.

1) Distance between centres of knurled areas.

2) This dimension shall not be exceeded within a depth of 10 mm from the top of the box.

FEUILLE DE NORMALISATION XV	CEE 7	STANDARD SHEET XV
Suite		Continuation

La boîte doit être en matière isolante moulée.

Une entrée de conducteurs au moins doit être disposée perpendiculairement à l'axe passant par les zones gaufrées.

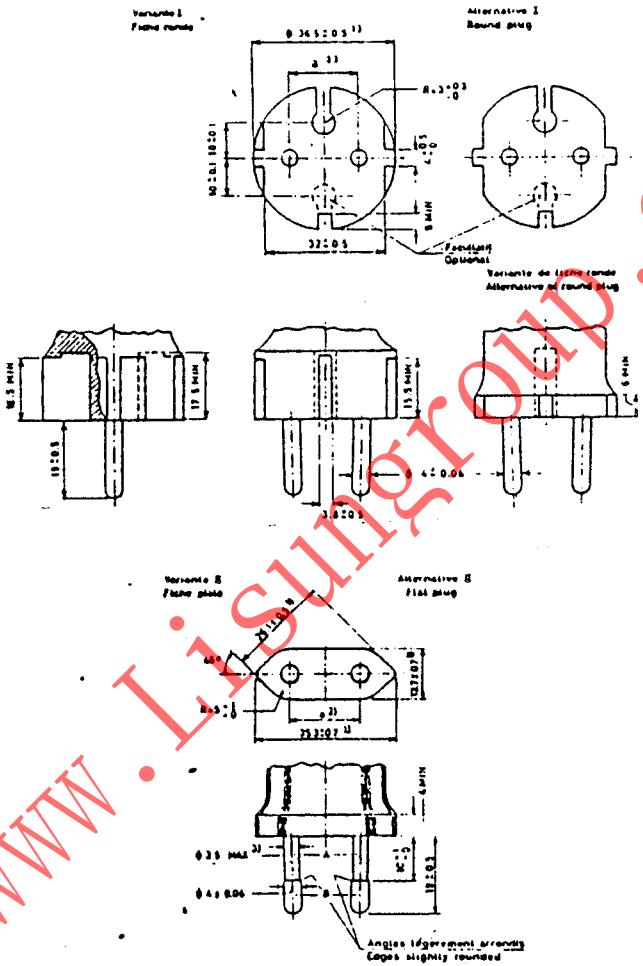
Les dessins ne préjugent pas les détails non cotés.

The box shall be of moulded insulating material.

At least one cable entry shall be at right angles to the centre line through the knurled areas.

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

FEUILLE DE NORMALISATION XVI	CEE 7	STANDARD SHEET XVI
FICHE BIPOLAIRE 2,5 A 250 V POUR APPAREILS DE LA CLASSE II		2·5 A 250 V TWO-POLE PLUG FOR CLASS II APPLIANCES



DIMENSIONS EN mm

DIMENSIONS IN mm

FEUILLE DE NORMALISATION XVI	CEE	STANDARD SHEET XVI
Suite	7	Continuation

Jusqu'au 31 décembre 1966 le contour de la fiche peut être conforme à la feuille de normalisation XVI de l'Additif 2 de juin 1962 à l'édition 1951 des présentes spécifications.

A. Gaine isolante, pour fiches plates seulement.

B. Broche en métal.

1) Ces dimensions constituent des maximums sur une hauteur de 18 mm à partir de la surface d'engagement de la fiche.

2) La dimension a est de:
18 à 19,2 mm dans le plan de la surface d'engagement,
17 à 18 mm aux extrémités des broches.

3) Cette dimension peut être portée à 4 mm sur une hauteur de 4 mm à partir de la surface d'engagement de la fiche.

Les broches avec gaine isolante doivent être massives.

Les fiches doivent avoir une forme et une longueur permettant de les saisir aisément avec les doigts lorsqu'elles sont retirées d'un socle ou d'une prise mobile conformes aux feuilles de normalisation I, III ou V.

La matière du corps de la fiche et l'entr'axe des broches doivent être tels que la fiche satisfasse aux essais avec les calibres représentés sur les figures 13 et 19 (calibre A).

Les nervures latérales éventuelles doivent avoir des angles légèrement arrondis.

Les dessins ne préjugent pas les détails non cotés.

Octobre 1963

Up to the 31st of December 1966 the outline of the plug may comply with Standard Sheet XVI of Supplement 2 of June 1962 to the 1951 edition of this specification.

A. Insulating collar, for flat plugs only.

B. Metal pin.

1) These dimensions shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

2) Dimension a is:
18 to 19.2 mm in the plane of the engagement face.
17 to 18 mm at the ends of the pins.

3) This dimension may be increased to 4 mm within a distance of 4 mm from the engagement face of the plug.

Pins with insulating collar shall be solid.

The plugs shall be of such shape and length as will enable them to be easily withdrawn by hand from a socket-outlet complying with Standard Sheet I, III or V.

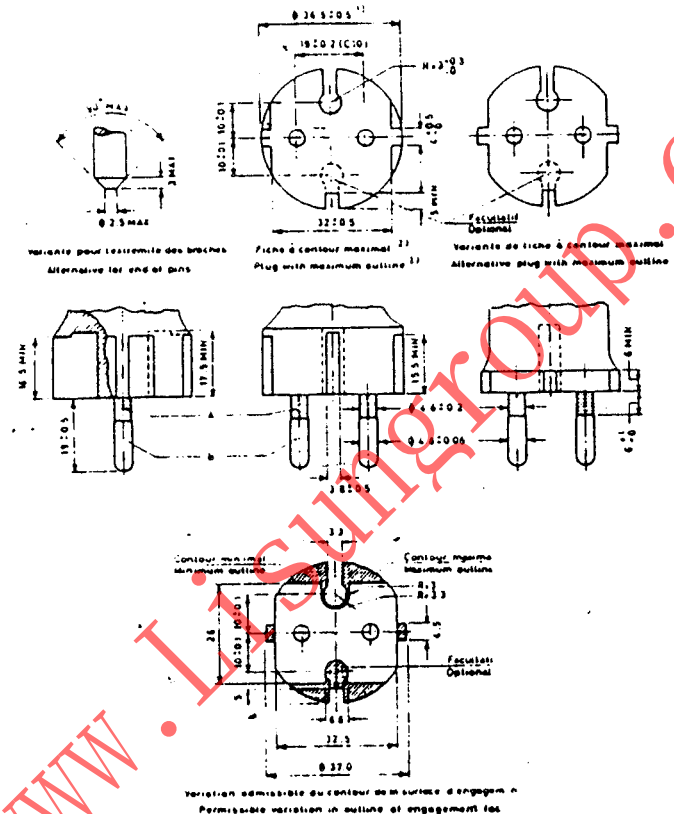
The material of the body of the plug and the pin spacing shall be such that the plug withstands the tests with the gauges shown in figures 13 and 19 (gauge A).

The side ridges, if any, shall have slightly rounded edges.

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

October 1963

FEUILLE DE NORMALISATION XVII	CEE 7	STANDARD SHEET XVII
FICHE BIPOLAIRE 10/16 A 250 V POUR APPAREILS DE LA CLASSE II		10/16 A 250 V TWO-POLE PLUG FOR CLASS II APPLIANCES



DIMENSIONS EN mm

A. Gaine isolante.

B. Broche en métal.

DIMENSIONS IN mm

A. Insulating collar.

B. Metal pin

FEUILLE DE NORMALISATION XVII	CEE 7	STANDARD SHEET XVII
Suite		Continuation

1) Cette dimension constitue un maximum sur une hauteur de 18 mm à partir de la surface d'engagement de la fiche.

2) Si le contour de la surface d'engagement respecte les tolérances indiquées pour le contour maximal, les broches peuvent ne pas comporter de gaine isolante, mais doivent alors avoir un diamètre de 4,8 ± 0,06 mm sur toute leur longueur.

(C) Les dimensions accompagnées de la lettre C suivie d'un nombre sont vérifiées par les calibres correspondants. Les tolérances sur de telles dimensions ne sont données qu'à titre indicatif.

Les broches avec gaine isolante doivent être massives; leurs extrémités doivent être arrondies, ou tronconiques comme indiqué sur la figure de détail.

Les fiches doivent avoir une forme et une longueur permettant de les saisir aisément avec les doigts lorsqu'elles sont retirées d'un socle ou d'une prise mobile conformes aux feuilles de normalisation I, III ou V.

Les nervures latérales éventuelles doivent avoir des angles légèrement arrondis.

Les dessins ne préjugent pas les détails non cotés.

1) This dimension shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

2) If the outline of the engagement face is within the tolerances shown for the maximum outline, the pins need no insulating collar, but shall then have a diameter of 4·8 ± 0·06 mm throughout their length.

(C) Dimensions followed by the letter C and a number are checked by the corresponding gauges. Tolerances on such dimensions are shown only as a guide.

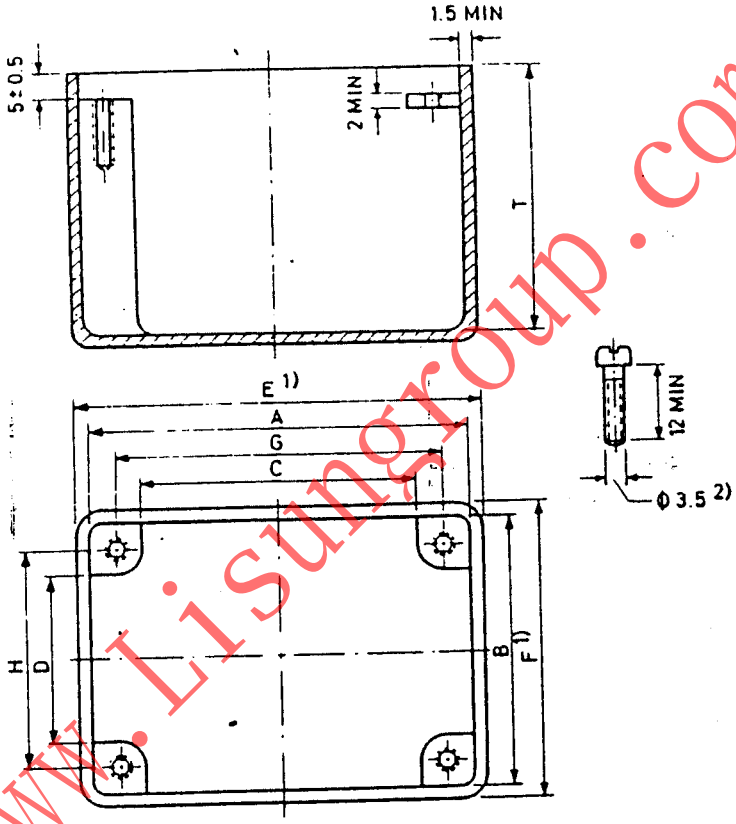
Pins with insulating collar shall be solid; their ends shall be rounded, or conical as shown in detail sketch.

The plugs shall be of such shape and length as will enable them to be easily withdrawn by hand from a socket-outlet complying with Standard Sheet I, III or V.

The side ridges, if any, shall have slightly rounded edges.

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

FEUILLE DE NORMALISATION XVIII	CEE 7	STANDARD SHEET XVIII
BOITES D'ENCASTREMENT POUR SOCLES 16 A 250/380 V, 16 A 380 V ET 25 A 380 V POUR POSE ENCASTREE A FIXATION PAR VIS		MOUNTING BOXES FOR 16 A 250/380 V, 16 A 380 V AND 25 A 380 V FLUSH-TYPE SOCKET-OUTLETS FOR SCREW FIXING



DIMENSIONS EN mm

1) Ces dimensions constituent des maximums sur une profondeur de 10 mm à partir du bord de la boîte.

2) Filetage conforme au § 11c.

DIMENSIONS IN mm

1) These dimensions shall not be exceeded within a depth of 10 mm from the top of the box.

2) Thread complying with § 11c.

FEUILLE DE NORMALISATION XVIII	CEE 7	STANDARD SHEET XVIII
Suite		Continuation

Courant nominal Rated current A	Type	A min.	B min.	C min.	D min.	E max.	F max.	G ± 0.5	H ± 0.5	T min.
16	2 P + ⏚ 2 P + N 3 P	72	75	47	50	82	85	60	60	57
	2 P + N + ⏚ 3 P + ⏚ 3 P + N 3 P + N + ⏚	98	75	73	50	108	85	83	60	57
25	2 P 2 P + ⏚ 2 P + N 3 P	86	85	61	60	96	95	70	70	63
	2 P + N + ⏚ 3 P + ⏚ 3 P + N 3 P + N + ⏚	118	85	93	60	128	95	103	70	63

Les trous de fixation et les vis doivent être tels que les vis puissent être vissées jusqu'à ce que leur tête touche le talon-support.

Les dessins ne préjugent pas les détails non cotés.

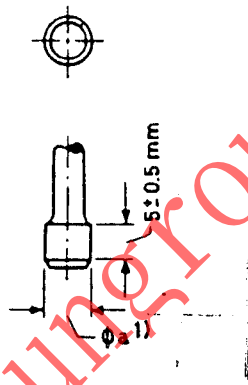
Fixing holes and screws shall be such that the screws can be screwed home until their heads come into contact with the fixing lugs.

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

Mai 1963

May 1963

SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V	Fig. 1	10/16 A 250 V TWO-POLE SOCKET-OUTLETS
CALIBRES C 1 POUR LES DIMENSIONS DES ORIFICES D'ENTREE DES BROCHES DES FICHES		GAUGES C 1 FOR SIZE OF ENTRY HOLES FOR PLUG PINS



1) La dimension a est de:

$6{,}0\ ^{+\ 0{,}01}_{-\ \ 0}$ mm pour les couvercles en matière céramique,

$5{,}8\ ^{+\ 0{,}01}_{-\ \ 0}$ mm pour les autres couvercles.

Il ne doit pas être possible d'introduire le calibre correspondant dans les orifices d'entrée sans forcer.

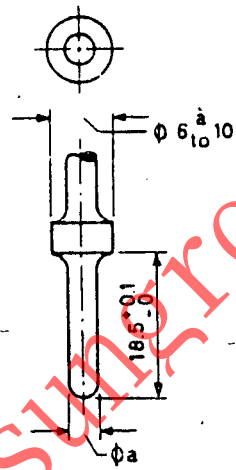
1) Dimension a is:

$6{\cdot}0\ ^{+\ 0{,}01}_{-\ \ 0}$ mm for covers of ceramic material,

$5{\cdot}8\ ^{+\ 0{,}01}_{-\ \ 0}$ mm for other covers.

It shall not be possible to insert the relevant gauge into the entry holes without undue force.

SOCLES ET PRISES MOBILES BIPOLAIRES ET FICHES BIPOLAIRES AVEC CONTACT MEDIAN DE TERRE 10/16 A 250 V	Fig. 2	10/16 A 250 V TWO-POLE SOCKET-OUTLETS AND TWO-POLE PLUGS WITH PIN-TYPE EARTHING-CONTACT
CALIBRES C 2 POUR L'OUVERTURE MINIMALE DES ALVEOLES		GAUGES C 2 FOR MINIMUM OPENING OF CONTACT TUBES



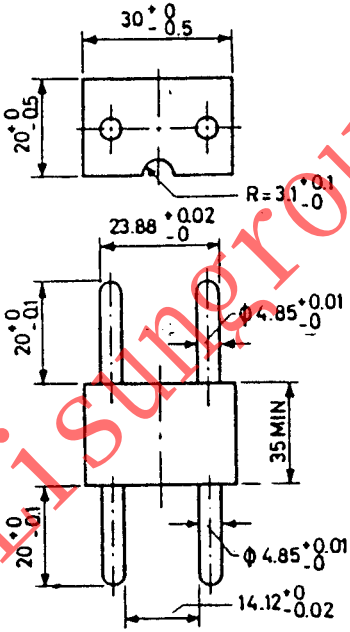
DIMENSIONS EN mm — DIMENSIONS IN mm

Appareil Accessory	Calibre Gauge	a	Masse Mass g
Socle ou prise mobile Socket-outlet	C 2 A	3.8 ± 0.05	400
Fiche Plug	C 2 B	4.6 ± 0.05	400

Le calibre ne doit pas sortir de l'alvéole sous l'effet de son poids.

The gauge shall not fall from the contact tube under its own weight.

SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V	Fig. 3	10/16 A 250 V TWO-POLE SOCKET-OUTLETS
CALIBRE C 3 POUR L'INTRODUCTION DES FICHES BIPOLAIRES		GAUGE C 3 FOR ACCEPTANCE OF TWO-POLE PLUGS



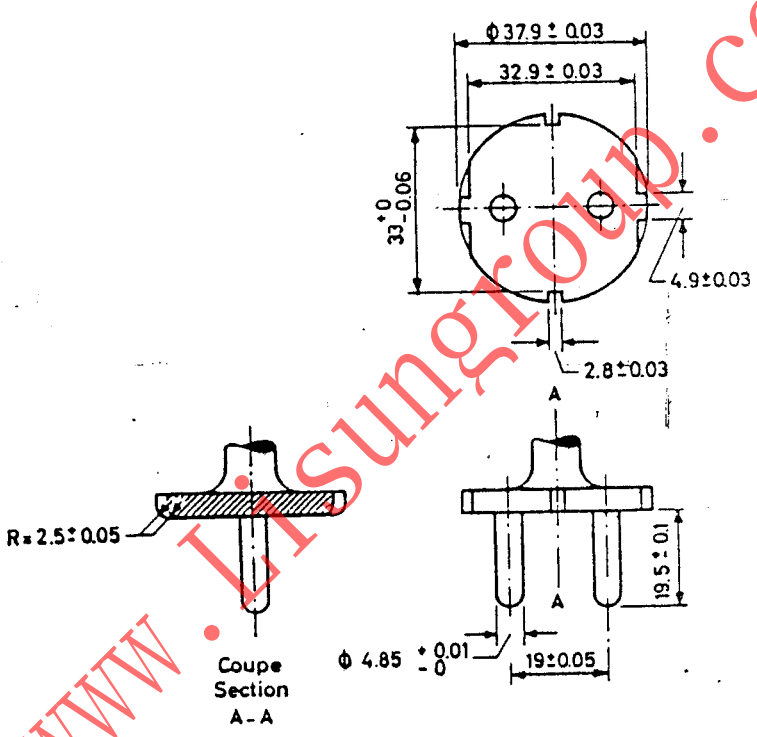
DIMENSIONS EN mm

Il doit être possible d'introduire complétement sans forcer les broches des deux côtés du calibre dans le socle ou dans la prise mobile.

DIMENSIONS IN mm

It shall be possible to insert the pins on both sides of the gauge completely into the socket-outlet without undue force.

SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V AVEC CONTACTS LATERAUX DE TERRE	Fig. 4	10/16 A 250 V TWO-POLE SOCKET-OUTLETS WITH SIDE EARTHING-CONTACTS
CALIBRE C 4 POUR L'INTRODUCTION DES FICHES BIPOLAIRES AVEC CONTACTS LATERAUX DE TERRE		GAUGE C 4 FOR ACCEPTANCE OF TWO-POLE PLUGS WITH SIDE EARTHING-CONTACTS



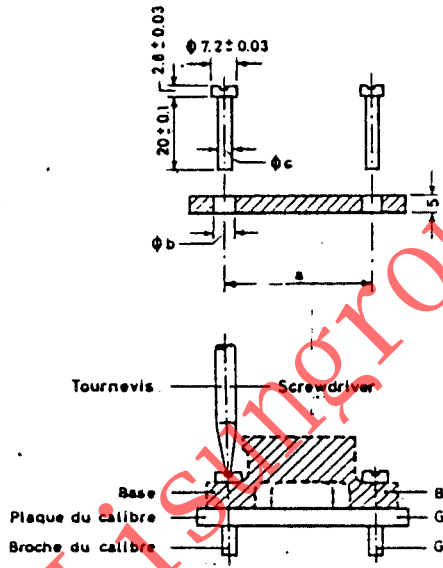
DIMENSIONS EN mm

Il doit être possible d'introduire complètement sans forcer les broches du calibre dans le socle ou dans la prise mobile.

DIMENSIONS IN mm

It shall be possible to insert the pins of the gauge completely into the socket-outlet without undue force.

SOCLES BIPOLAIRES 10/16 A 250 V	Fig. 6	10/16 A 250 V TWO-POLE FIXED SOCKET-OUTLETS
CALIBRES C 6 POUR LES TROUS OU ENCOCHES DE FIXATION		GAUGES C 6 FOR FIXING HOLES OR SLOTS



DIMENSIONS EN mm — DIMENSIONS IN mm

Calibre Gauge	a	b	c
C 6 A	37.85 ± 0.01	4.05 $^{+\ 0.012}_{-\ 0}$	4.05 $^{+\ 0}_{-\ 0.012}$
C 6 B	38.15 ± 0.01		

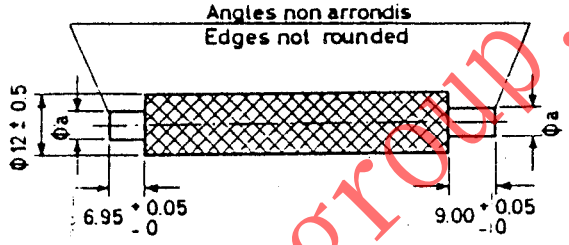
Il doit être possible d'introduire les deux broches du calibre dans les trous ou encoches de fixation du socle et de les faire entrer successivement dans les trous des deux plaques du calibre, de façon à pouvoir les faire tourner au moyen d'un tournevis sans l'incliner.

Ces calibres ne sont utilisés que pour les socles ordinaires pour pose en saillie et pour les socles dont la base se fixe directement sur le fond d'une boîte.

It shall be possible to pass the two gauge pins through the fixing holes or slots of the socket-outlet and to enter them into the holes of both gauge plates in turn, so that they can be turned by means of a screwdriver without tilting it.

These gauges are used only for ordinary surface-type socket-outlets and for socket-outlets which are to be fixed directly to the bottom of a box.

SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V	Fig. 7	10/16 A 250 V TWO-POLE SOCKET-OUTLETS
CALIBRES C 7 POUR LA DISTANCE JUSQU'AU PREMIER POINT DE CONTACT		GAUGES C 7 FOR DISTANCE TO POINT OF FIRST CONTACT



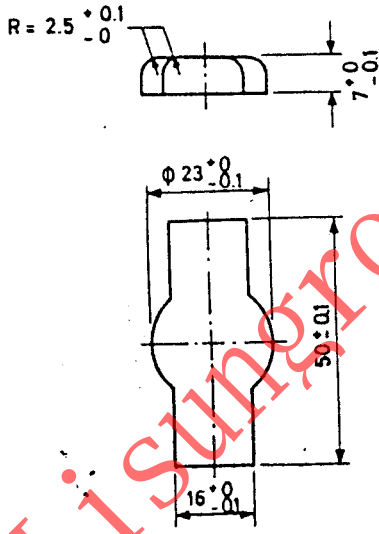
DIMENSIONS EN mm — DIMENSIONS IN mm

Calibre Gauge	a	Tolérance Tolerance
C 7 A	5.45	
C 7 B	5.60	+ 0.02 — 0
C 7 C	5.75	
C 7 D	5.95	

On choisit parmi les calibres C 7 A à D celui dont la dimension a est immédiatement inférieure au diamètre de l'orifice d'entrée des broches de fiches. La broche courte ne doit pas faire contact avec les alvéoles du socle ou de la prise mobile et la broche longue doit faire contact avec les alvéoles lorsque le calibre est introduit complètement.

The largest of the gauges C 7 A to D which will enter the entry hole for plug pins is used. The short pin shall not reach the contact tubes of the socket-outlet and the long pin shall touch the contact tubes when the gauge is completely inserted.

SOCLES BIPOLAIRES 10/16 A 250 V	Fig. 8	10/16 A 250 V TWO-POLE FIXED SOCKET-OUTLETS
CALIBRE C 8 POUR LE PASSAGE DES CONDUCTEURS		GAUGE C 8 FOR WIRING CHANNEL



DIMENSIONS EN mm

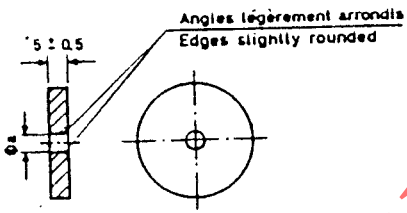
Il doit être possible:
pour les socles ordinaires pour pose en saillie et pour les socles dont la base se fixe directement sur le fond d'une boîte, d'introduire le calibre dans le passage des conducteurs de façon qu'il ne fasse pas saillie;
pour les autres socles, de fixer la base dans une boîte d'encastrements de 40 mm de profondeur conforme aux feuilles de normalisation XIII ou XV, après avoir placé le calibre entre la base et le fond de la boîte.

DIMENSIONS IN mm

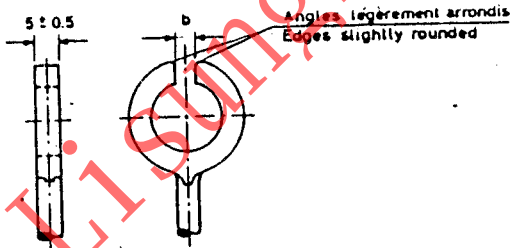
It shall be possible:
for ordinary surface-type socket-outlets and for socket-outlets which are to be fixed directly to the bottom of a box, to insert the gauge into the wiring channel so that it does not protrude therefrom;
for other fixed socket-outlets, to fix the base in a 40 mm deep mounting box complying with Standard Sheet XIII or XV, when the gauge is placed between the base and the bottom of the box.

FICHES BIPOLAIRES 2,5 A 250 V ET 10/16 A 250 V ET SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V AVEC CONTACT MEDIAN DE TERRE	Fig. 9	2·5 A 250 V AND 10/16 A 250 V TWO-POLE PLUGS AND 10/16 A 250 V TWO-POLE SOCKET-OUTLETS WITH PIN-TYPE EARTHING-CONTACT
CALIBRES C 9 POUR LE DIAMETRE DES BROCHES		GAUGES C 9 FOR PIN DIAMETER

Calibres "entre"
"Go" gauges



Calibres "n'entre pas"
"Not go" gauges



DIMENSIONS EN mm

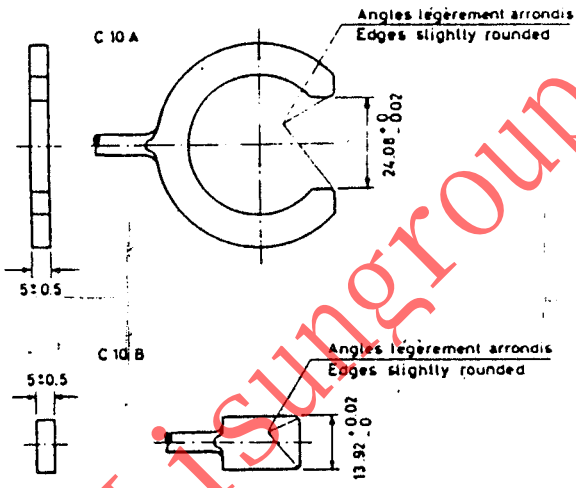
DIMENSIONS IN mm

Courant nominal Rated current A	Calibre Gauge	a	b
2.5	C 9 A	$4.06 \begin{smallmatrix}+0.01\\-0\end{smallmatrix}$	$3.94 \begin{smallmatrix}+0\\-0.01\end{smallmatrix}$
10/16 a	C 9 B	$4.86 \begin{smallmatrix}+0.01\\-0\end{smallmatrix}$	$4.74 \begin{smallmatrix}+0\\-0.01\end{smallmatrix}$

Il doit être possible de faire passer la broche à travers le calibre "entre" sans forcer; il ne doit pas être possible de faire passer la broche entre les mâchoires du calibre "n'entre pas" sans forcer.

It shall be possible to pass the pin through the "go" gauge without undue force; it shall not be possible to pass the pin through the gap in the "not go" gauge without undue force.

FICHES BIPOLAIRES 10/16 A 250 V	Fig. 10	10/16 A 250 V TWO-POLE PLUGS
CALIBRES C 10 POUR L'ENTR'AXE DES BROCHES		GAUGES C 10 FOR PIN SPACING



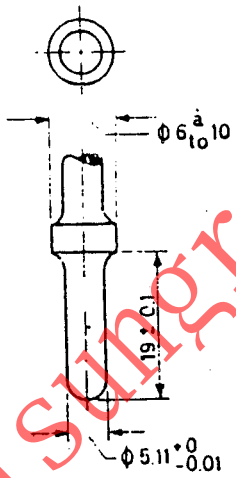
DIMENSIONS EN mm

Le calibre C 10 A doit passer à l'extérieur des broches sans forcer et le calibre C 10 B doit passer entre les broches sans forcer.

DIMENSIONS IN mm

Gauge C 10 A shall pass outside the pins without undue force and gauge C 10 B shall pass between the pins without undue force.

SOCLES ET PRISES MOBILES BIPOLAIRES ET FICHES BIPOLAIRES AVEC CONTACT MEDIAN DE TERRE 10/16 A 250 V	Fig. 11	10/16 A 250 V TWO-POLE SOCKET-OUTLETS AND TWO-POLE PLUGS WITH PIN-TYPE EARTHING-CONTACT
CALIBRE C 11 POUR L'OUVERTURE MAXIMALE DES ALVEOLES		GAUGE C 11 FOR MAXIMUM OPENING OF CONTACT TUBES



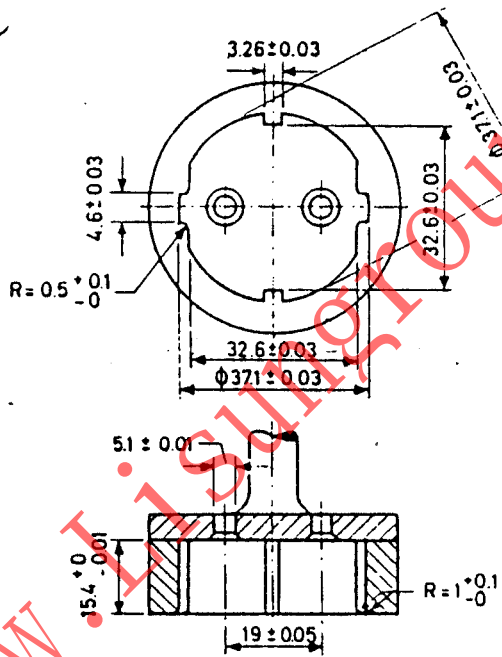
DIMENSIONS EN mm

Il doit être possible d'introduire le calibre dans l'alvéole sans forcer.

DIMENSIONS IN mm

It shall be possible to insert the gauge into the contact tube without undue force.

FICHES BIPOLAIRES 10/16 A 250 V AVEC CONTACTS LATERAUX DE TERRE	Fig. 12	10/16 A 250 V TWO-POLE PLUGS WITH SIDE EARTHING-CONTACTS
CALIBRE C 12 POUR L'INTERCHANGEABILITE		GAUGE C 12 FOR INTERCHANGEABILITY



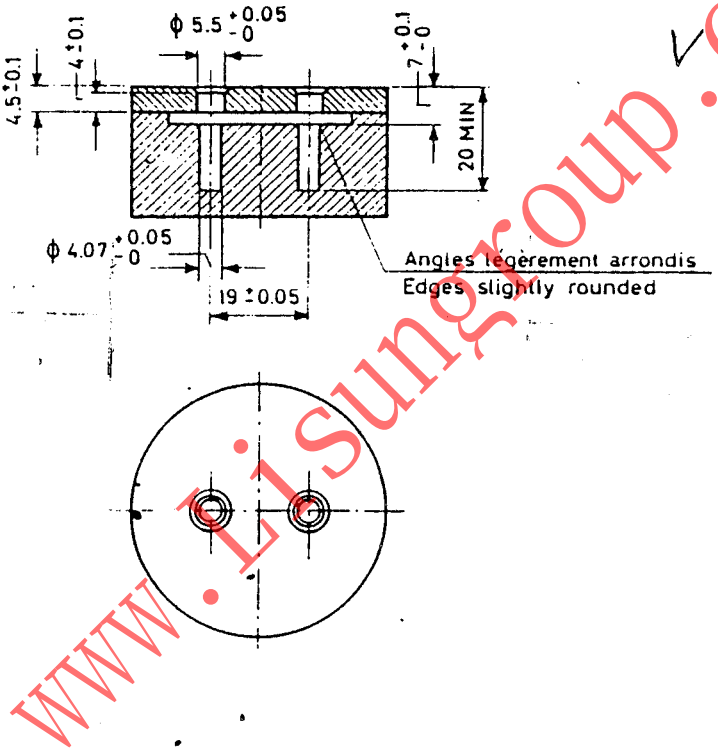
DIMENSIONS EN mm

Il doit être possible d'introduire complètement les fiches avec contacts latéraux de terre dans le calibre sans forcer.

DIMENSIONS IN mm

It shall be possible to insert plugs with side earthing-contacts completely into the gauge without undue force.

FICHES BIPOLAIRES 2,5 A 250 V POUR APPAREILS DE LA CLASSE II	Fig. 13	2·5 A 250 V TWO-POLE PLUGS FOR CLASS II APPLIANCES
CALIBRE POUR L'INTERCHANGEABILITE		GAUGE FOR INTERCHANGEABILITY



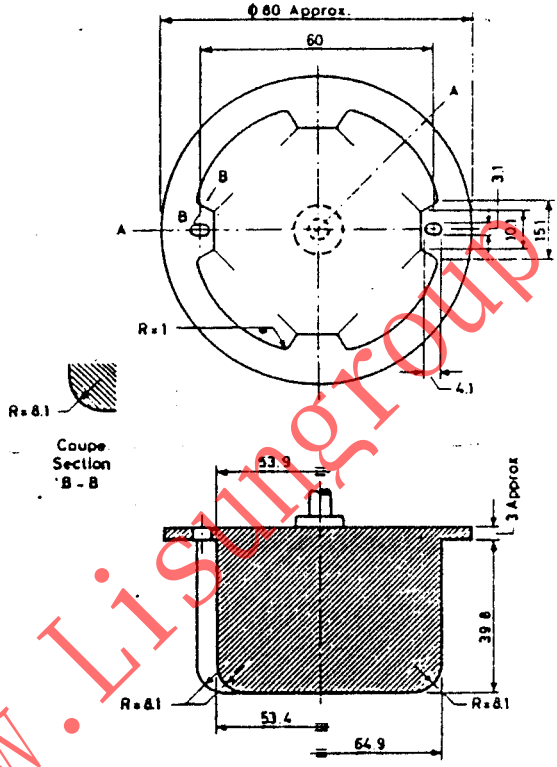
DIMENSIONS EN mm

Il doit être possible d'introduire les fiches dans le calibre sans forcer jusqu'à ce que la surface d'engagement soit en contact avec la surface du calibre.

DIMENSIONS IN mm

It shall be po·. le to insert the plugs into the gauge with.ut undue force so that the engagement face comes into contact with the surface of the gauge.

SOCLES BIPOLAIRES 10/16 A 250 V POUR POSE ENCASTREE A FIXATION PAR VIS	Fig. 14	10/16 A 250 V TWO-POLE FLUSH-TYPE SOCKET-OUTLETS FOR SCREW FIXING
CALIBRE POUR LES DIMENSIONS DES BOITES D'ENCASTREMENT		GAUGE FOR DIMENSIONS OF MOUNTING BOXES



DIMENSIONS EN mm

DIMENSIONS IN mm

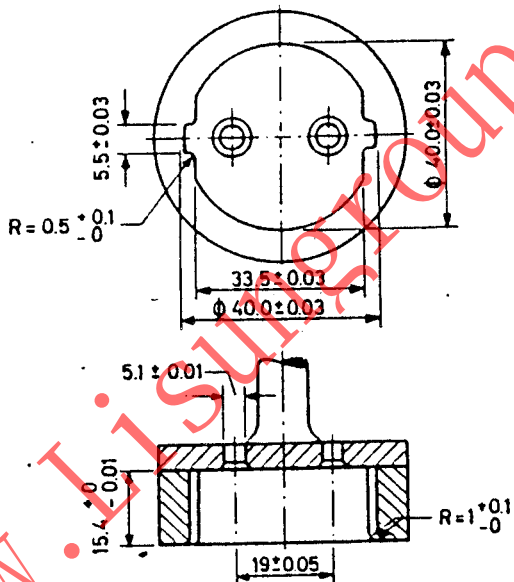
Tolérances de fabrication sur toutes les cotes ± 0.05 mm.

Il doit être possible d'introduire le calibre dans la boite sans forcer jusqu'à ce que le rebord du calibre s'appuie sur le bord de la boite, et de fixer le calibre à la boite à l'aide de deux vis de diamètre 3 mm.

Manufacturing tolerances for all dimensions ± 0·05 mm.

It shall be possible to insert the gauge into the box without undue force so that the flange of the gauge comes to rest on the top of the box, and to fix the gauge to the box by means of two 3 mm screws.

FICHES BIPOLAIRES 10/16 A 250 V SANS CONTACT DE TERRE	Fig. 15	10/16 A 250 V TWO-POLE PLUGS WITHOUT EARTHING CONTACT
CALIBRE POUR L'ININTERCHANGEABILITE AVEC LES FICHES BIPOLAIRES AVEC CONTACT DE TERRE		GAUGE FOR NON-INTERCHANGEABILITY WITH TWO-POLE PLUGS WITH EARTHING CONTACT



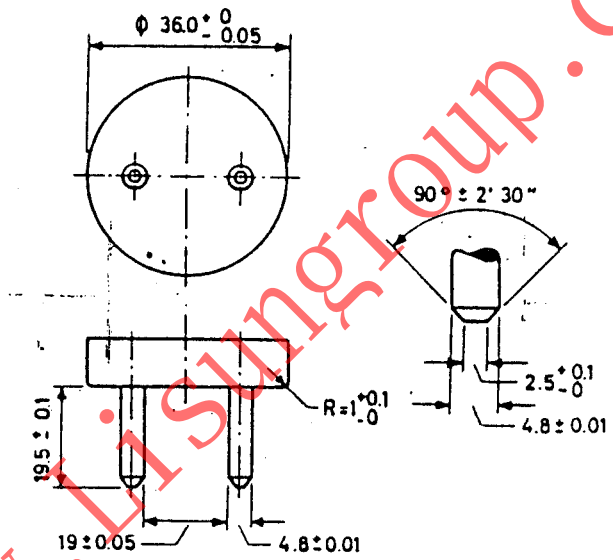
DIMENSIONS EN mm

Il ne doit pas être possible d'introduire les fiches sans contact de terre dans le calibre.

DIMENSIONS IN mm

It shall not be possible to insert plugs without earthing contact into the gauge.

SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V AVEC CONTACTS LATERAUX DE TERRE	Fig. 16	. 10/16 A 250 V TWO-POLE SOCKET-OUTLETS WITH SIDE EARTHING-CONTACTS
CALIBRE POUR LA NON INTRODUCTION DES FICHES BIPOLAIRES SANS CONTACT DE TERRE		GAUGE FOR NON-ACCEPTANCE OF TWO-POLE PLUGS WITHOUT EARTHING CONTACT

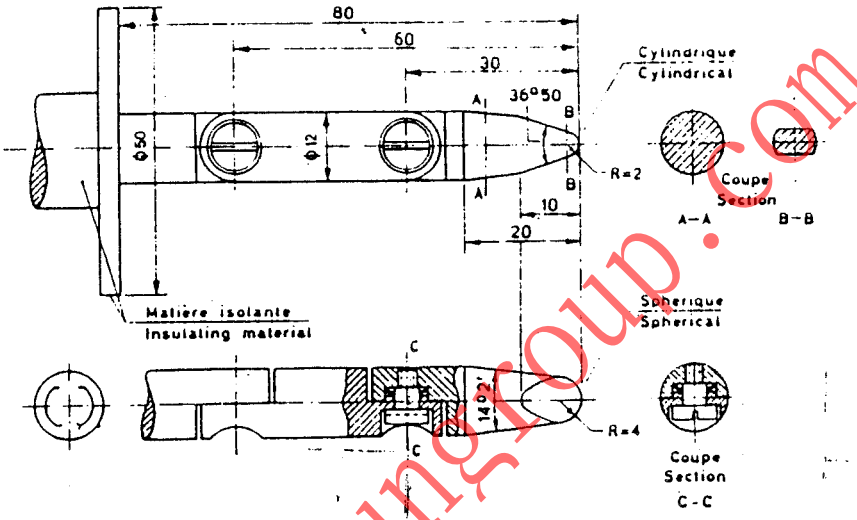


DIMENSIONS EN mm

Il ne doit pas être possible d'introduire le calibre dans le socle ou dans la prise mobile.

DIMENSIONS IN mm

It shall not be possible to insert the gauge into the socket-outlet.



DIMENSIONS EN mm

Tolérances:
sur les angles ± 5'
sur les dimensions:
inférieures à 25 mm: $+\ 0$ / $-\ 0{,}05$
supérieures à 25 mm: ± 0,2

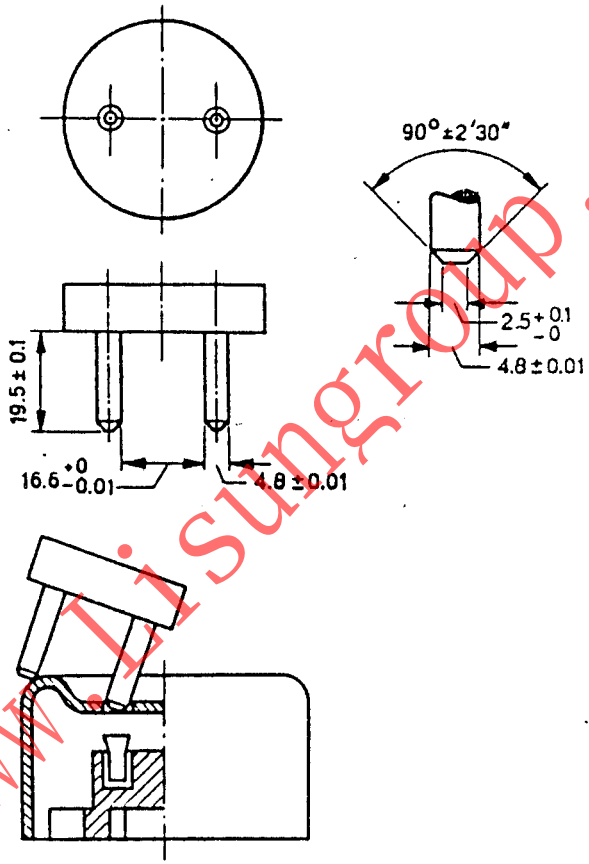
DIMENSIONS IN mm

Tolerances:
on angles ± 5
on linear dimensions:
less than 25 mm: $+\ 0$ / $-\ 0{\cdot}05$
over 25 mm: ± 0·2

Fig. 17

Doigt d'épreuve — Standard test finger

SOCLES ET PRISES MOBILES BIPOLAIRES 10/16 A 250 V SANS CONTACT DE TERRE	Fig. 18	10/16 A 250 V TWO-POLE SOCKET-OUTLETS WITHOUT EARTHING CONTACT
CALIBRE POUR VERIFIER L'IMPOSSIBILITE DE L'INTRODUCTION D'UNE SEULE BROCHE DES FICHES		GAUGE FOR CHECKING IMPOSSIBILITY OF SINGLE-POLE INSERTION OF PLUGS



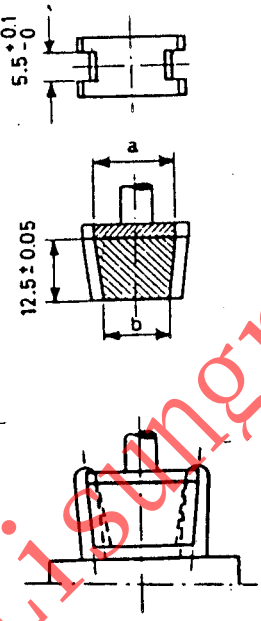
DIMENSIONS EN mm

Il ne doit pas être possible de toucher un alvéole avec une seule broche du calibre.

DIMENSIONS IN mm

It shall not be possible to touch a contact tube with one gauge pin only.

FICHES BIPOLAIRES 2,5 A 250 V ET 10/16 A 250 V	Fig. 19	2·5 A 250 V AND 10/16 A 250 V TWO-POLE PLUGS
CALIBRES POUR VERIFIER L'IMPOSSIBILITE DE L'INTRODUCTION D'UNE SEULE BROCHE DES FICHES DANS LES SOCLES OU PRISES MOBILES		GAUGES FOR CHECKING IMPOSSIBILITY OF SINGLE-POLE INSERTION OF PLUGS INTO SOCKET-OUTLETS



DIMENSIONS EN mm — DIMENSIONS IN mm

Courant nominal Rated current A	Calibre Gauge	a	b
2.5	A	16.4 ± 0.05	12.3 ± 0.1
10/16	B	15.6 ± 0.05	13.0 ± 0.1

La masse du calibre est de:
250 g pour les fiches en matière rigide,
1000 g pour les autres fiches.
Le calibre est laissé au repos entre les broches comme indiqué ci-dessus, pendant 1 minute. Sous l'effet de son poids, le calibre ne doit pas entrer en contact avec la surface d'engagement de la fiche.

The mass of the gauge is:
250 g for plugs of rigid material,
1000 g for other plugs.
The gauge is allowed to rest between the pins as shown above, for 1 minute. Under its own weight, the gauge shall not come into contact with the engagement face of the plug.

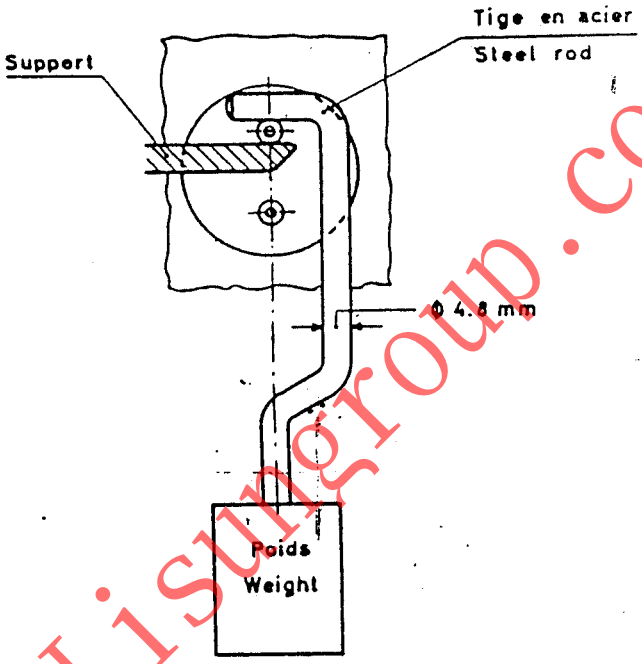
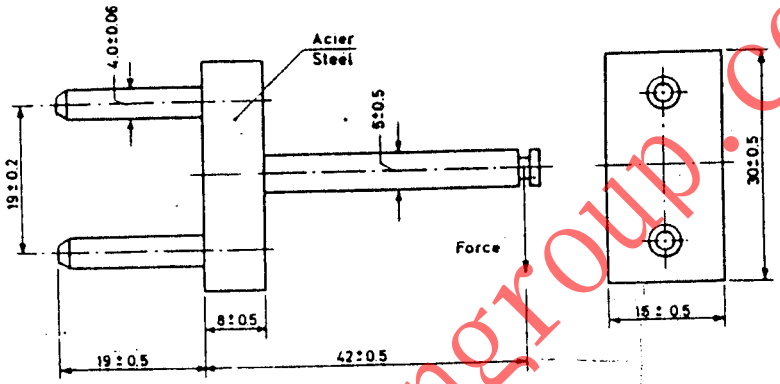


Fig. 20

Dispositif d'essai des broches non massives

Device for testing non-solid pins



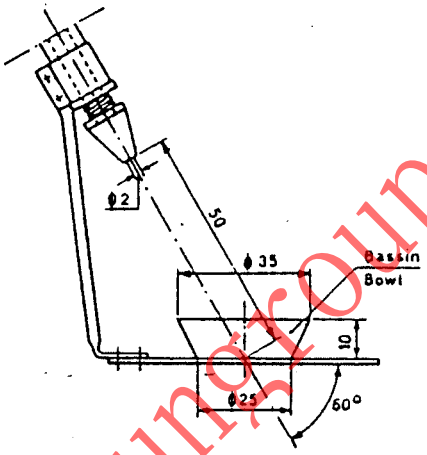
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 21

Dispositif pour la vérification de la résistance aux efforts latéraux des socles bipolaires. 10/16 A 250 V

Device for checking the resistance to lateral strain of 10/16 A 250 V two-pole fixed socket-outlets



DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 22

Appareil d'éclaboussement

Splash apparatus

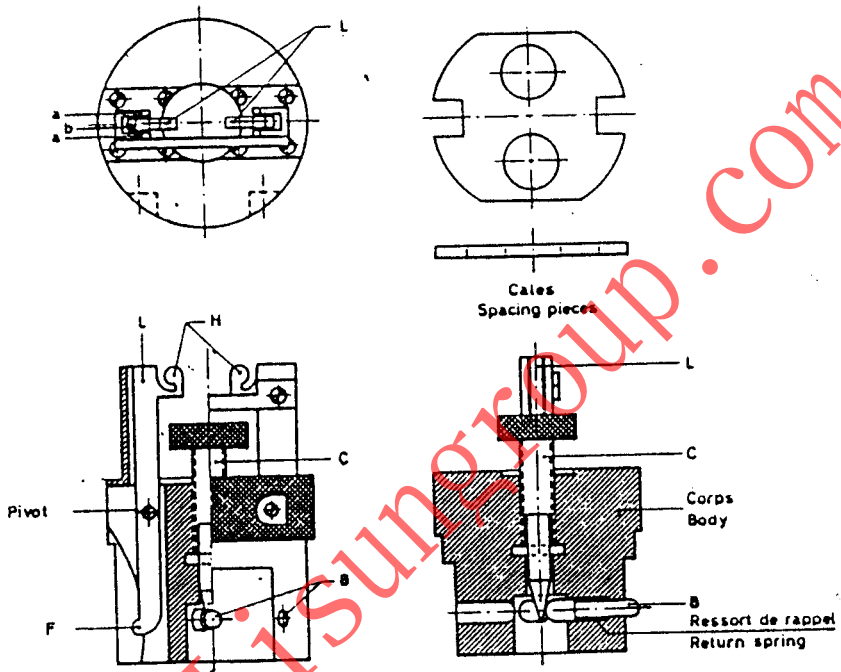
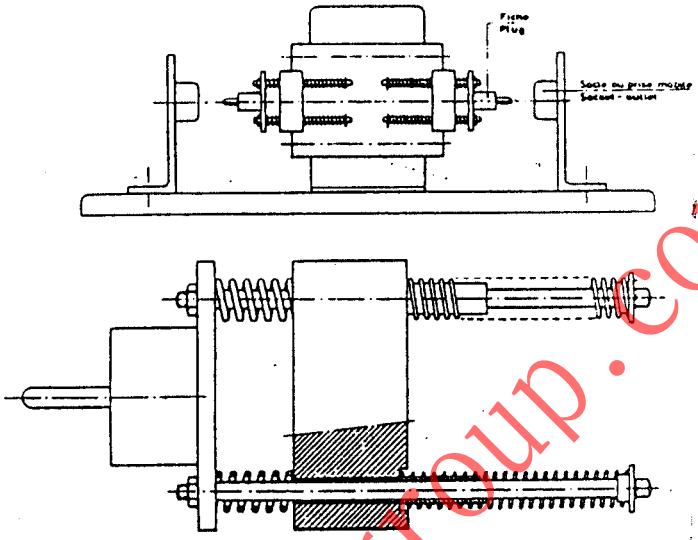


Fig. 23

Dispositif pour la mesure de la pression de contact des contacts de terre des socles et prises mobiles bipolaires 10/16 A 250 V avec contacts latéraux de terre

Device for measuring the contact pressure of earthing contacts of 10/16 A 250 V two-pole socket-outlets with side earthing-contacts



Les ressorts doivent être choisis et réglés de façon que:

dans la position de non engagement ils exercent une force sur le support de la fiche égale à 0,9 fois la force minimale de séparation appropriée spécifiée au § 22.

lorsqu'ils sont comprimés au tiers de la différence entre leur longueur dans la position de non engagement et la longueur après compression totale, ils exercent une force égale à 1,2 fois la force maximale de séparation appropriée spécifiée au § 22.

The springs are so chosen and adjusted that:

in the disengaged position they exert a force on the plug carrier equal to 0·9 times the appropriate minimum withdrawal force specified in § 22.

when compressed by one third of the difference between the length in the disengaged position and the fully compressed length, they exert a force equal to 1·2 times the appropriate maximum withdrawal force specified in § 22.

Fig. 24

Appareil d'essai du pouvoir de coupure et du fonctionnement normal

Apparatus for breaking capacity and normal operation tests

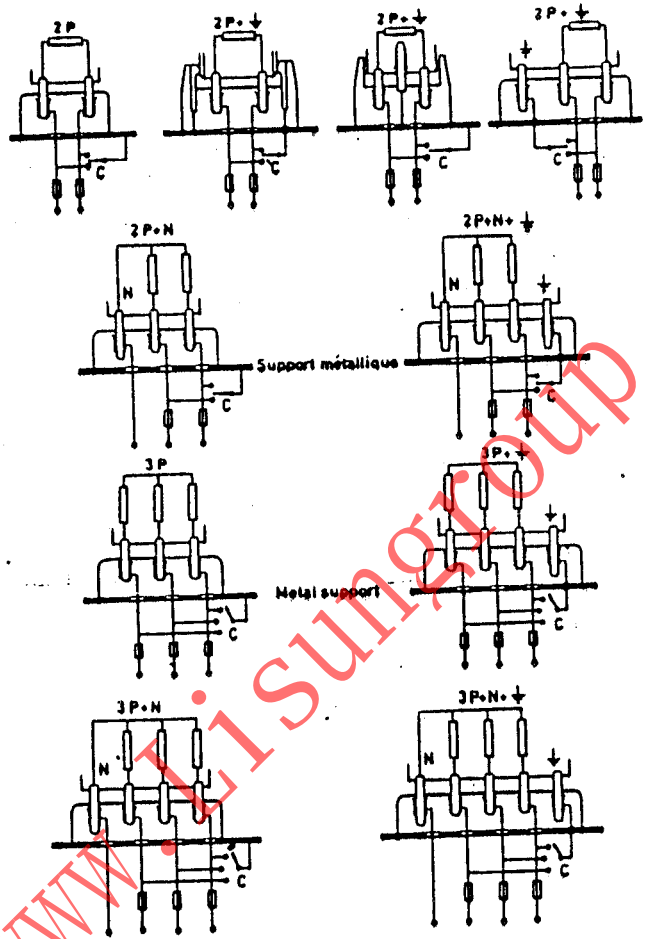
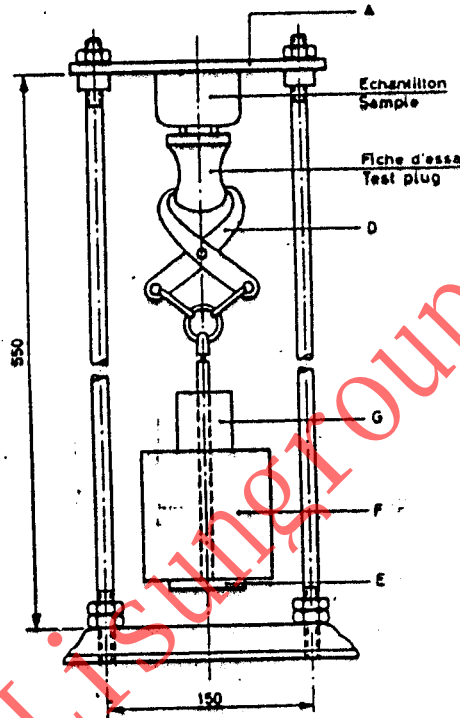


Fig. 25

Schémas du circuit pour les essais du pouvoir de coupure et du fonctionnement normal

Circuit diagrams for breaking capacity and normal operation tests



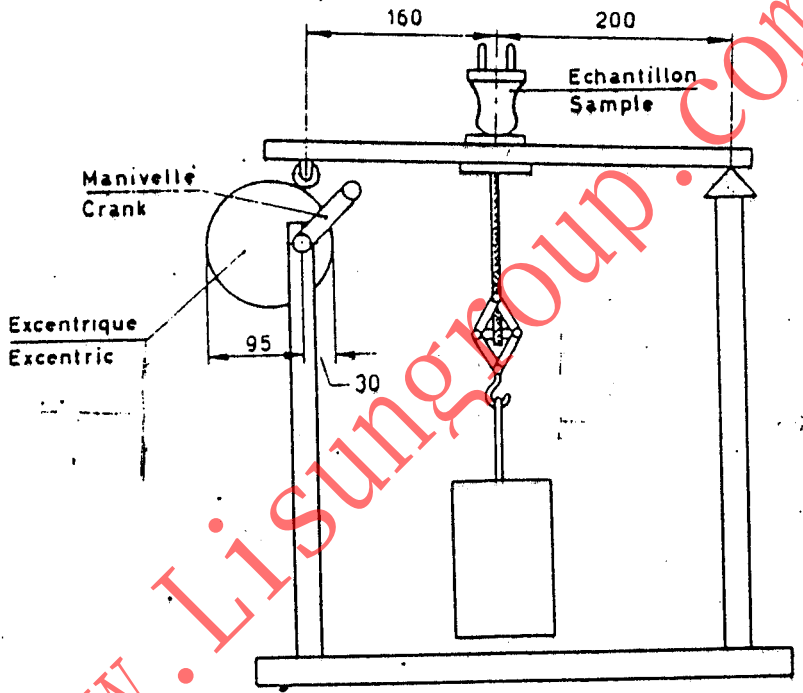
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 26

Appareil pour la vérification de la force de séparation

Apparatus for checking the withdrawal force



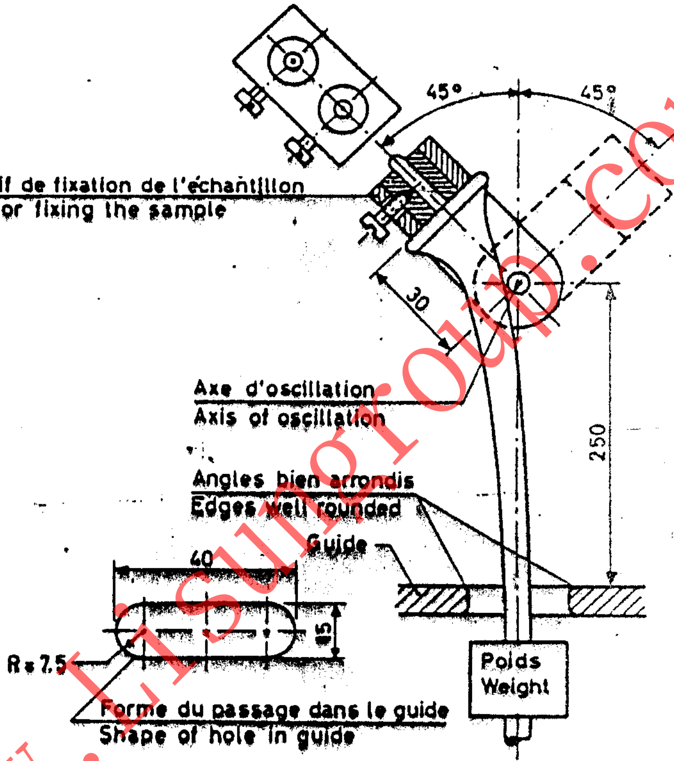
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 27

Appareil d'essai du dispositif d'arrêt de traction et de torsion

Apparatus for testing the cord anchorage



DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 28

Appareil d'essai de flexion

Apparatus for flexing test

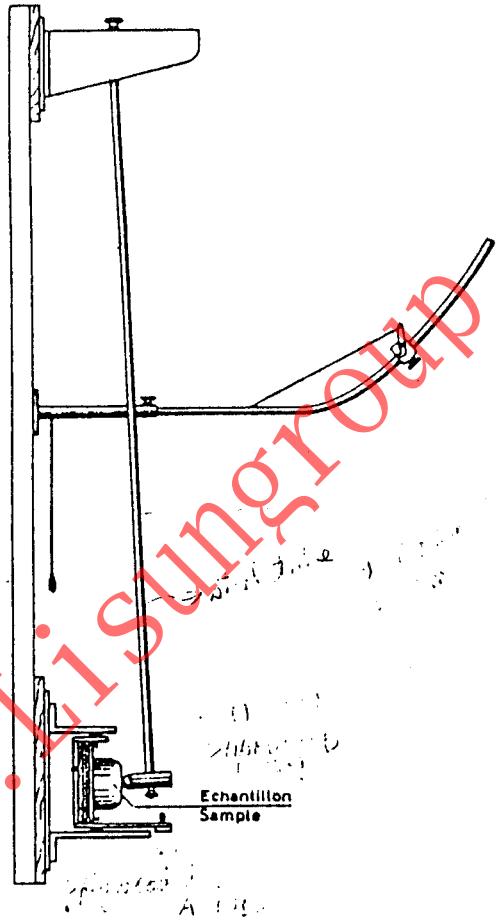
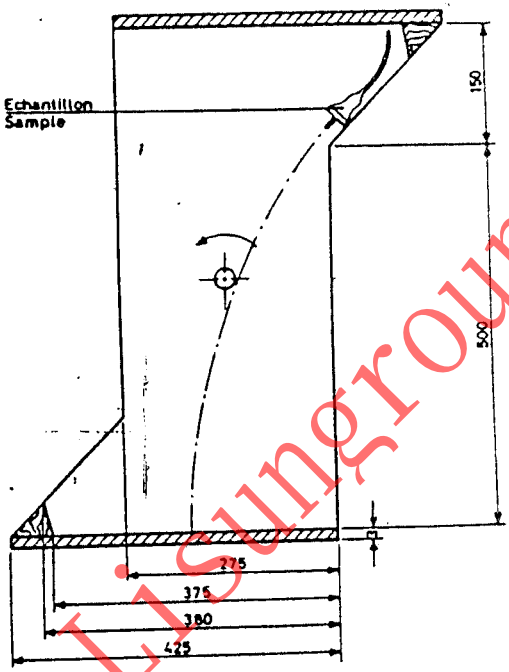


Fig. 29

Appareil d'essai de choc — Impact-test apparatus



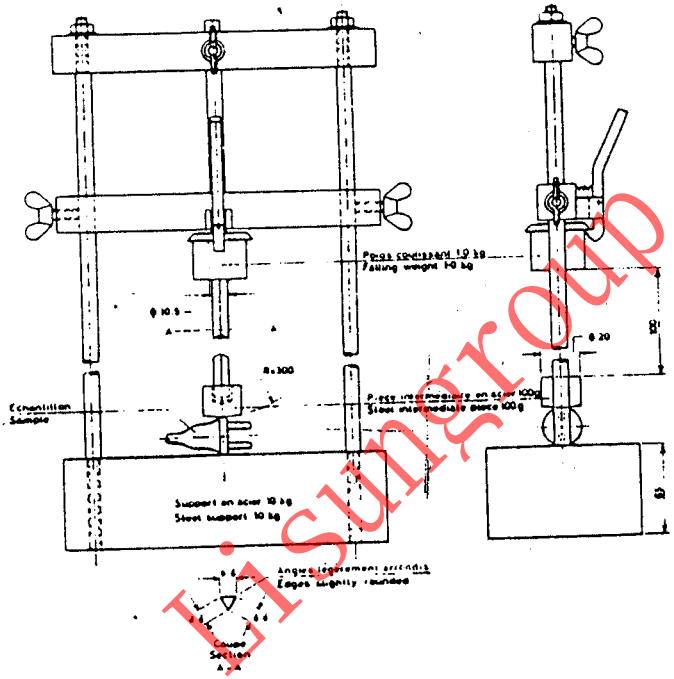
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 30

Tambour tournant

Tumbling barrel



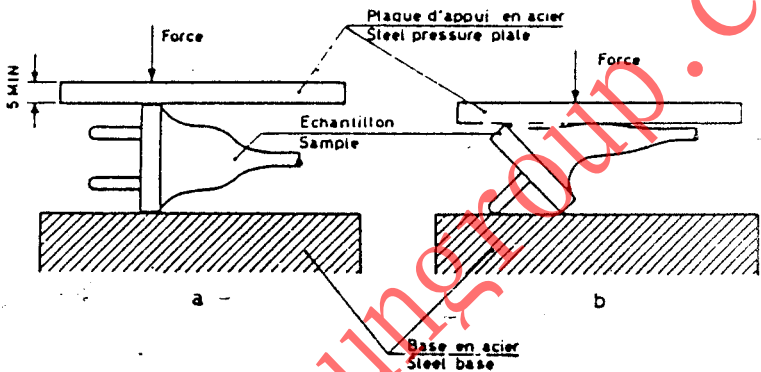
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 31

Appareil d'essai de choc à basse température

Apparatus for impact test at low temperature



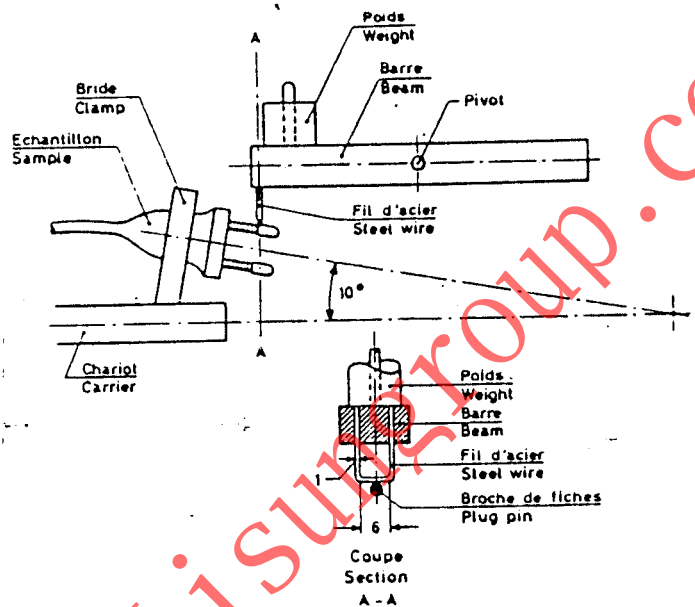
DIMENSION EN mm

DIMENSION IN mm

Fig. 32

Disposition pour l'essai de compression

Arrangement for compression test



Vue partielle agrandie de la coupe A-A montrant le fil d'acier

Enlarged part of section A-A showing steel wire

DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 33

Appareil pour l'essai d'abrasion des gaines isolantes des broches de fiches

Apparatus for abrasion test on insulating collars of plug pins

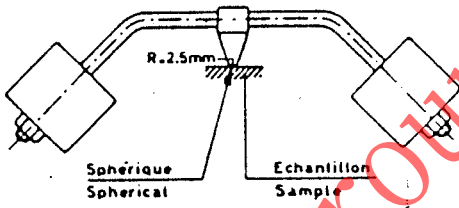
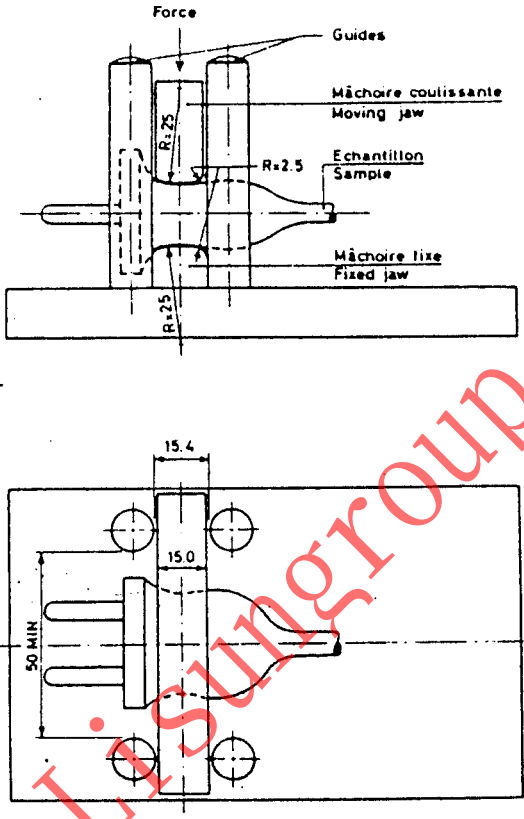


Fig. 34

Appareil pour l'essai à la bille — Ball-pressure apparatus



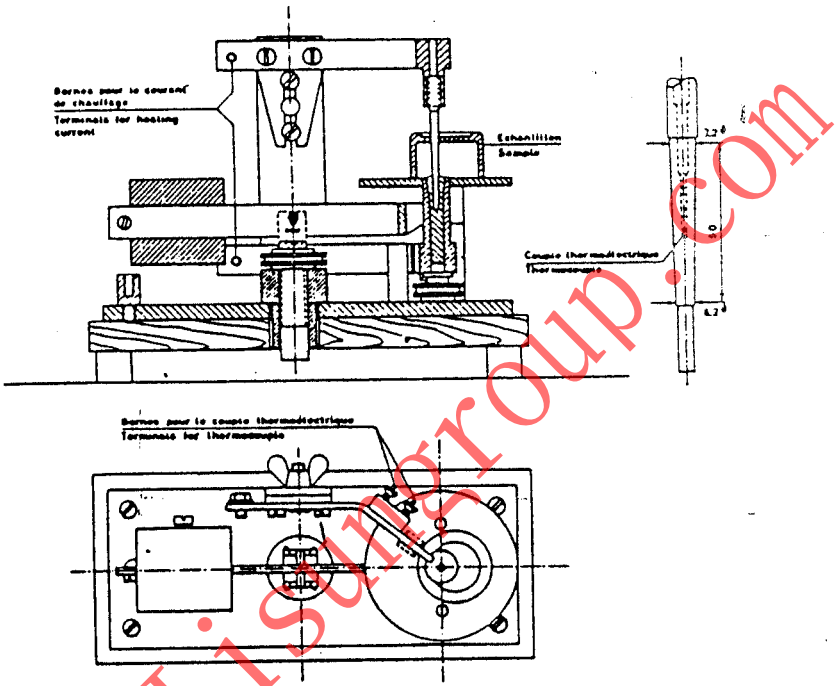
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 35

Appareil pour l'essai de compression des fiches et prises mobiles

Apparatus for pressure test on plugs and portable socket-outlets



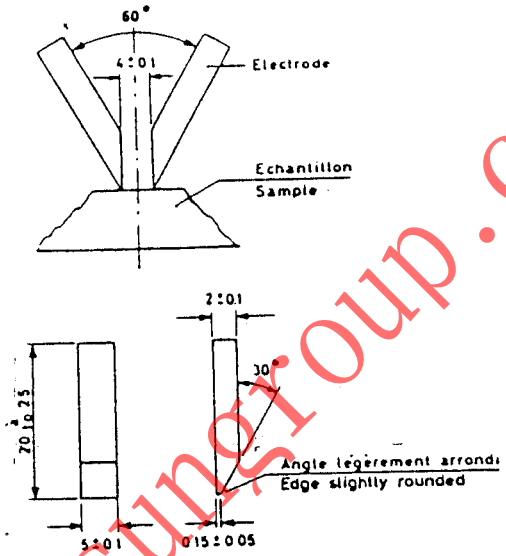
DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 36

Appareil pour l'essai au doigt incandescent

Hot mandrel apparatus



DIMENSIONS EN mm

DIMENSIONS IN mm

Fig. 37

Arrangement et dimensions des électrodes pour l'essai de résistance aux courants de cheminement

Arrangement and dimensions of the electrodes for the tracking test

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