SRI LANKA STANDARD 948 : PART 2 : 1991

UDC 621.316.541

SPECIFICATION FOR

THREE PIN PLUGS, SOCKET - OUTLETS AND SOCKET - OUTLET ADAPTORS

PART 2 - PLUGS MADE OF RESILIENT MATERIAL

SRI LANKA STANDARDS INSTITUTION

SPECIFICATION FOR THREE-PIN PLUGS SOCKET-OUTLETS AND SOCKET-OUTLET ADAPTORS

PART 2 : PLUGS MADE OF RESILIENT MATERIAL

SLS 948 : Part 2 : 1991

(Attached AMD 349)

Gr. 5

SRI LANKA STANDARDS INSTITUTION
53, Dharmapala Mawatha,
Colombo 3,
Sri Lanka.

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SRI LANKA STANDARD
SPECIFICATION FOR THREE-PIN PLUGS SOCKET-OUTLETS AND SOCKET-OUTLET ADAPTORS
PART 2 : PLUGS MADE OF RESILIENT MATERIAL

FOREWORD

This standard was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 1991.12.31, after the draft, finalized by the Drafting Committee on Electrical accessories, had been approved by the Electrical Engineering Divisional Committee.

This standard supersedes SLS 512 : 1981, and is presented in three parts, namely;
Part 1 Plugs, socket-outlets and adaptors,
Part 2 Plugs made of resilient materials and
Part 3 Switched socket-outlets.

All values given in this specification are in SI Units.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test or an analysis shall be rounded off in accordance with CS 102. The number of figures to be retained in the rounded off values shall be the same as that of the specified value in this standard.

The Sri Lanka Standards Institution gratefully acknowledges the use of the publications of the British Standards Institution in the preparation of this standard.

1 SCOPE

This specification relates to 5 ampere and 15 ampere plugs fused or unfused, in which the base and cover, or either of these components, are constructed of rubber or other suitable resilient materials.

2 REFERENCES

ISO 7619 Rubber - Determination of indentation hardness by means of pocket hardness meters
CS 102 Presentation of numerical values
SLS 948 Three pin plugs socket outlets and socket outlet adaptors
Part 1 Plugs socket outlets and adaptors.

3 DEFINITIONS

In addition to the definitions of Clause 3 of SLS 948 : Part 1 : 1991, the following definitions shall apply for the purpose of this specification.

3.1 **rubber** : The word rubber, where used, refers to mouldings made partly or entirely of rubber or other suitable resilient material which will meet the requirements and tests of this specification.

3.2 **overhang** : The term overhang defines the condition arising when a multi-pin plug is inserted into a socket-outlet in such a way that at least one pin can enter a current-carrying socket-contact while the other pin or pins are exposed.

4 GENERAL REQUIREMENTS

4.1 Plugs conforming to this specification shall, unless otherwise specified, comply with the following Clauses of SLS 948 : Part 1 : 1991.

Clause 4 General requirements.
Clause 5. Special requirements for plugs (Sub- Clause 5.1 5.5 and 5.7).
Clause 9 Tests excluding 9.4.

4.2 For the purpose of this specification following amendments to the relevant Clauses of SLS 948 : Part 1 :1991 shall apply.

4.2.1 Where the base and cover of the plug, or either of these components, are constructed of rubber, as defined in 3 and specified in 4.3 of this specification, then the requirements of Clause 4.9 of SLS 948 : Part 1 : 1991 for the base and cover shall not apply to such components.

4.3 Materials

Rubber, when used for the cover or base shall be free from blisters, cracks, embedded foreign matter and other physical properties and defects likely to affect insulating and mechanical protecting properties and shall have a hardness not less than International Rubber Hardness Degrees 85 when tested in an ambient temperature of 20 ^{0}C $\pm$ 5 ^{0}C.

NOTE
The hardness may be checked by a meter specified in ISO 7619.

4.4 Construction of plugs

4.4.1 *General*
Plugs shall be so designed and constructed that they cannot readily be deformed to allow access to live parts, nor shall it be possible for separated metal parts to be brought into contact with each other. The construction of the plug shall be such as to provide the user with adequate protection against shock. The plug shall be sufficiently strong to resist mechanical damage under normal service conditions and shall comply with the 'Plug pin deflection test' specified in 6.3 of this specification.

4.4.2 *Plugs with integral flexible cord*
Where a flexible cord is moulded integrally with a plug, the size of the flexible cord shall be appropriate to the current rating of the plug. Such a plug is not subject to the provisions of 5.6 of SLS 948 : Part 1 : 1991.

4.4.3 *Fused-plugs with integral flexible cord*
If a flexible cord is moulded integrally with a fused plug, the current rating of the fuse appropriate to the flexible cord shall be clearly marked on the plug.

4.5 Precautions against accidental contact

No part of the current-carrying pins, live or neutral shall be less than the minimum distance given in Table 1 from the periphery of the face of the plug measured when the plug is inserted into the appropriate socket outlet as far as the first point of contact of the current carrying pins.

TABLE 1 _ Minimum distance between current carrying pins and the periphery

Current rating	Minimum distance
A	mm
5	7.9
15	9.5

4.6 Plug pins

Plug pins shall be substantially cylindrical in form, and shall have radiused ends to facilitate entry into corresponding socket outlets. They shall not be split or slotted. The dimensions shall be as given in Table 7 of SLS 948 : Part 1 : 1991.

4.7 Construction of plug pins and terminals

Each plug pin of a non-fused plug, each earthing plug pin, and each neutral plug pin of a fused plug, shall be formed in one piece with the fixed part of its terminal.

Each terminal shall be of substantial construction, and the terminals of a non-fused plug, and the earthing terminal and the neutral terminals of a fused plug, shall each provide for clamping and securing of its flexible conductor so that efficient electrical connection is made directly with an integral part of the plug pin.

That contact for the fuse-link which is connected to the line terminal of a fused plug shall be formed in one piece with the fixed part of the terminal or connected to it in such a way that it cannot work loose under normal service conditions, and the other contact shall be similarly connected to the corresponding plug pin. The line terminal shall also provide for clamping and securing of the conductor so that efficient electrical connection is made with the contact for the fuse-link.

If the plug pins are removable from the plug base, the pin and/or the plug base shall be so designed that it is impossible to assemble them in such a way that the fuse is connected to the neutral terminal.

When pillar terminals are used they shall be of the dimensions given in Table 9 of SLS 948 : Part 1 : 1991 and shall have cheese-headed clamping-screws long enough under the head to extend to the far side of the conductor holes and with slightly rounded ends to minimize damage to conductors.

4.8 Connection between cover and base of plug

The plug cover and base shall be firmly secured to one another. Any screws or other devices used for securing the plug cover and the plug base shall only be accessible from the under side of the base of the plug.

4.9 Ageing

Plugs shall be sufficiently resistant to ageing as proved by the type test specified in 6.2 of this specification.

5 MARKING

Plugs shall be clearly and indelibly marked with the manufacturer's name or identifying mark in addition to requirements of 8.1 of SLS 948 : Part 1 : 1991.

For the marking of fused plugs with integral flexible cord, attention is drawn to the requirements of 4.4.3.

6 TESTS

In addition to the tests of Clause 9 of SLS 948 : Part 1 : 1991 the tests specified in 6.2 and 6.3 of this specification shall be type tests.

6.1 Insulation resistance test

Every plug having live metal in contact with rubber shall pass the following tests in lieu of the test specified in Clause 9.4 of SLS 948 : Part 1 : 1991 before being subjected to a high voltage test as required by 9.5 of SLS 948 : Part 1 : 1991.

The insulation resistance between line and neutral terminals and earth terminal shall be not less than 50 megaohms and the test shall be made at not less than 500 volts d.c. applied for a sufficient length of time for the reading of the measuring instrument to become steady, the supply being obtained from an independent source or generated in the measuring instrument.

6.2 Ageing test

An accelerated ageing test is made in an atmosphere having the composition and pressure of the ambient air. The samples are suspended freely in a heating cabinet in which the air is renewed by natural draught. They are kept at a temperature of 70 ^{0}C $\pm$ 2 ^{0}C for 240 hours.

It is recommended that an electrically heated cabinet is used. The temperature may be measured by means of a thermometer. The natural air circulation may be provided by holes in the walls of the cabinet.

After the test and after samples have been allowed to cool to the ambient temperature, the samples shall comply in all respects with the other requirements, 6.1 and 6.3.

6.3 Plug pin deflection test

Plugs shall be tested for deflection of plug pins under the following conditions of test :

A suitable form of apparatus is shown in Fig. 1 of this specification.
The test shall be carried out in an ambient temperature of 20^{0}C $\pm$ 5^{0}C.

The plug shall be clamped in a mounting block by means of any two of the plug pins in such a manner as to ensure the face of the plug from which the plug pins project is supported and in contact with a corresponding flat surface on the mounting block. The back of the plug shall not be supported or come into contact with the fixture. The axes of the clamped plug pins shall be horizontal.

Provision shall be made in the mounting block for the application to the remaining pin of a deflecting force of 4.5 N applied at a distance of 25.4 mm from the face of the plug and at right angles to the axes of the pin under test.

The deflection of the pin from the horizontal axis is measured at 25.4 mm from the face of the plug.

The mounting block shall ensure that the axis passing through the pin under test and each of the clamped pins in turn shall be in the same vertical plane as the applied deflecting force with the pin under test disposed in the lower position. Two measurements of deflection shall be recorded with either clamped pin in the upper position.

The deflection of each pin shall be the arithmetical mean of the two measurements.

The deflection of the plug pin shall not exceed 0.5 times the diameter of the pin under test.

7 SAMPLING AND CRITERIA FOR CONFORMITY

Clause 10 of SLS 948 : Part 1 : 1991 shall apply along with the type tests specified in 6.2 and 6.3 of this specification.

AMENDMENT NO. 1 APPROVED ON 2006-11-29
TO SLS 948 : PART 2 : 2991

SRI LANKA STANDARD SPECIFICATION FOR THREE-PIN PLUGS, SOCKET-OUTLETS AND SOCKET-OUTLET ADAPTORS

PART 2 PLUGS MADE OF RESILIENT MATERIAL

Clause 4.5

Delete this clause entirely.

Clause 4. 6

Delete the last paragraph and substitute with the following :

When pillar terminals are used they shall either :

a) meet the requirements given in Table **9a** of **SLS 948 Part 1**, and have cheese-headed clamping screws long enough under the head to extend to the far side of the conductor holes and with slightly rounded ends to minimize damage to conductors; or

b) meet the requirements given in Table **9b** of **SLS 948 Part 1**. Terminal screws used in making electrical connections shall have a root area not less than that of the appropriate screws in Table **9b** of **SLS 948 Part 1** and shall withstand the minimum torques given in that table. ISO metric screws shall comply with **SLS 268**.

SRI LANKA STANDARDS INSTITUTION

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