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SPECIFICATION FOR OFFICE PINS AND CLIPS

BUREAU OF CEYLON STANDARDS

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SLS 510:1981

Gr. 9

BUREAU OF CEYLON STANDARDS
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SRI LANKA STANDARD
SPECIFICATION FOR OFFICE PINS AND CLIPS

FOREWORD

This Sri Lanka Standard was authorised for adoption and publication by the Council of the Bureau of Ceylon Standards on 1981-03-03, after the draft, finalised by the Drafting Committee on Office Pins and Clips, has been approved by the Mechanical Engineering Divisional Committee.

This standard specification is divided into two sections. The first section deals with pins and the second section deals with clips.

All values given in this specification are in SI units. Also in relevant cases technical metric equivalents are given within parentheses for the convenience of the industry.

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

The assistance derived from the publications of the American National Standards Institution, the Indian Standards Institution, and the South African Bureau of Standards is gratefully acknowledged.

1 SCOPE

1.1 Section 1 of this Sri Lanka Standard Specification covers requirements for office pins. It includes method of sampling of the product and of raw material wire.

1.2 Section 2 of this Sri Lanka Standard Specification covers requirements for office clips. It includes method of sampling of the product and of raw material wire.

2 REFERENCES

CS 76 Tensile testing of steel wire

CS 102 Presentation of numerical values

SLS 428 Random sampling methods

SECTION 1 OFFICE PINS

3 TYPES

Office pins shall be one of the following types. Type 1 is of brass and Type 2 and Type 3 are of steel. Type 2 and Type 3 are also distinguished between them by the coating applied, whether protective metal coated or protective non-metal coated.

Type 1 Brass pins

Type 2 Steel pins, protective metal coated.

Type 3 Steel pins, protective non-metal coated.

4 REQUIREMENTS

4.1 Material

4.1.1 Brass pins shall be made of brass alloy pin wire conforming to the chemical composition given below.

Constituent	Percentage
Copper	60.0 to 72.0
Lead	0.35 (maximum)
Iron	0.70 (maximum)
Zinc	Remainder

4.1.2 Steel pins shall be made of steel wire conforming to the following chemical composition and tensile strength.

4.1.2.1 Chemical composition

Constituent	Percentage
Carbon	0.15 (minimum)
Manganese	0.60 (minimum)
Sulphur	0.060 (minimum)
Phosphorus	0.060 (minimum)

4.1.2.2 Tensile strength

Tensile strength of not less than 800 MPa (80 kgf/mm^2) and not more than 1 000 MPa (100 kgf/mm^2) when tested according to CS 76.

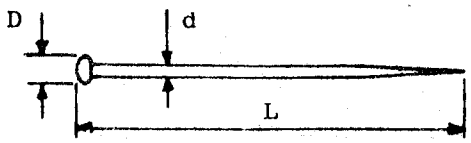
4.2 Workmanship and finish

A pin shall have a straight smooth round body with a well formed round head and a sharp taper pointed end so as to be smooth and be able to pass the test given in 7.1. They shall be free from seams,

cracks, burrs, pits, and blemishes of any kind when viewed under 10 X magnification. Steel pins shall be provided with a protective metal coating or a protective non-metal coating. Type 2 pins shall pass the test given in 7.3 and Type 3 pins shall pass the tests given in 7.3 and 7.4.

4.3 Shape and dimensions

4.3.1 The shape and dimensions of pins shall be as given in **Fig. 1.**



Length (L) ± 1.0	Dia. of wire (d) ± 0.02	Dia of the head (D) ± 0.10
20	0.71 and 0.80	1.6 and 1.9
26	0.71 and 0.80	1.6 and 1.9
32	0.80 and 0.90	1.7 and 2.0

All dimensions in millimetres

FIGURE 1 - Office pins

5 PACKING

Pins of one type, one size, or as assorted sizes shall be packed in 50 g (min.), or 100 g (min.) net packs, in paper board boxes or wrapped in suitable material and securely closed to prevent accidental opening. The number of pins of each size in assorted packs shall not vary by more than 15 pins from the theoretical value of the proportion of each size in the pack which shall be taken to be equal.

6 MARKING

The packs shall be legibly marked with the following information:

a) Manufacturer's name and/or trade mark;

b) The type and size (length) of pins contained and in the case of assorted packs, the type and assortment indicated;

c) Finish;

d) Net mass of pins, in g; and

e) Batch or code number.

7 TESTS

7.1 Piercing test

The pins shall be able to fasten without undue pressure on the hand, at least the number of sheets given below:

Length of pin	(dia. of wire)	Number of sheets of 71 g/m^2 paper
mm	(mm)	
20	0.71	07
26	0.71	09
32	0.80	11

When viewed after the test, the coating shall not have peeled off or been removed from any part of the pin.

7.2 Brass test

Brass pins shall be tested with a magnet to determine whether iron or steel has been substituted for brass.

7.3 Corrosion resistance test

Pins shall be dipped in a solution of mineral spirits to remove any surface films, or grease and wiped dry. They shall then be dipped upright upto about three fourth of their lengths in saline water (0.9 per cent *m/V* of solution of sodium chloride in distilled water) or inserted into a freshly washed and rinsed white cloth moistened with saline water and the cloth wrapped round the pins for five hours. On removal from the liquid or cloth wrapping, there shall not be any visible signs of corrosion on the point or the body of the pins, or any signs of rust in the liquid or the cloth.

7.4 Test for adherence

Type 3 pins shall be introduced into an air oven at 100 ± 2 °C for five minutes. It shall be removed thereafter from the oven and kept at room temperature for one hour and then examined; the coating shall not have peeled off and shall have remained firmly adherent. Inspection for adherence of coating after the test shall be carried out by rubbing the pins with a piece of dry cotton wool in the direction of the body of the pin towards the sharp end applying equal pressure on the thumb and the forefinger, gripping the pin between the cotton wool in such a manner that no sharp edges (*viz.* finger nail) employ concentrated pressure on the pin. The rubbing is repeated five times while examining the coating for peeling or removal of any loose particles from any part of the pin on the cotton wool, any one of which shall not have occurred. This test applies to Type 3 pins only.

8 SAMPLING

8.1 The raw material wire shall be selected for testing, according to the procedure given in **Appendix A.**

8.2 Pins

8.2.1 lot : In any consignment all the pins of the same type, and size manufactured on one date shall be grouped together to constitute a lot.

8.2.2 Boxes/packets of pins shall be selected at random from each lot as given in Table 2 in **Appendix A.** The sample unit shall be one box/packet, and ten pins taken at random from each box/packet shall be examined according to **9.2.**

If there are two or more defectives in the sample of ten pins taken from the box/packet, the whole box/packet shall be considered defective and shall be rejected.

9 INSPECTION

9.1 Raw material wire

Test pieces selected as in **8.1** (see **A.1.1.4**) shall be examined for the following:

a) Material, and

b) Diameter.

9.1.1 Any test piece which fails to satisfy the general requirements of this standard in any one of the above characteristics shall be declared as a defective.

9.2 Pins

All pins selected as in **8.2.2** shall be examined for the following:

a) Shape and dimensions;

b) Workmanship and finish; and

c) Tests.

Any pins which fail to satisfy the general requirements of this standard in any one of the above characteristics shall be declared as defective.

NOTE - Tests on pins shall be carried out in the order, that no test performed shall interfere with or influence the succeeding tests in any way that affects the performance of the pins.

10 CONFORMITY TO STANDARD

10.1 Raw material wire

The coils of the lot shall be declared as conforming to chemical composition, tensile strength and diameter, if the number of defective test pieces tested as in **9.1** is less than or equal to the permissible number given in Column 3 of Table 1 in **Appendix A.**

In case proper quality control of the raw material wire to the satisfaction of the purchaser or the inspecting officer, has been maintained by the manufacturers and the quality was found to be satisfactory as evidenced by suitable certificates accompanying the lot, no tests may be required for the determination of chemical composition, tensile strength and diameter.

10.2 Finished product

The pins of the lot shall be declared as conforming to this standard if the lot of the raw material wire used in the manufacture of the pins conform to the chemical composition, tensile strength, and diameter examined according to **10.1** and if the number of defective boxes/packets of the finished product tested as in **9.2** does not exceed the permissible number given in Column 3 of Table 2 in **Appendix A.**

10.3 The sampling plan subject to which acceptance of a lot, with respect to raw material wire and the other requirements for the finished product is determined in this standard, ensure that it will on the long run accept approximately 95 per cent of the lots of coils and boxes/packets of the product provided the process average level of per cent defective (or number of defectives per 100 items) coils or boxes/packets of the product in these lots is not greater than the Acceptance Quality Level (AQL) value of 2.5 and 6.5 respectively.

SECTION 2 OFFICE CLIPS

11 REQUIREMENTS

11.1 Material

Clips shall be made from steel wire conforming to the following chemical composition and tensile strength.

11.1.1 *Chemical composition*

Constituent	Percentage
Carbon	0.15 (minimum)
Manganese	0.60 (minimum)
Sulphur	0.060 (maximum)
Phosphorus	0.060 (maximum)

11.1.2 *Tensile strength*

The tensile strength of not less than 800 MPa (80 kgf/mm^2) and not more than 1.000 MPa (100 kgf/mm^2) when tested according to **CS 76.**

11.2 Workmanship and finish

Clips shall be manufactured as indicated in the **Fig. 2a, 2b** and **2c.** The four wires on long sides of clips shall be straight and parallel to one another as indicated in the **Fig. 2a** and **2b.** The wires on each of the adjacent sides shall be straight and parallel as indicated in **Fig. 2c.** The wire shall merge smoothing into loops as indicated in **Fig. 2a** and **2c.** Except for the raised lip the clips shall be flat throughout their length. They shall be free from sharp jagged edges, and cracked or flaked coatings. Clips shall be either protective metal coated or protective non-metal coated.

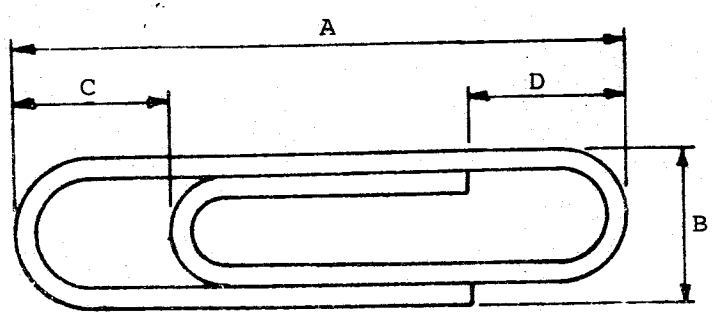
11.3 Shapes and dimensions

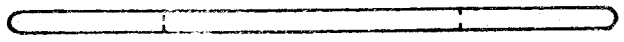
The shapes and dimensions of clips shall be as given in **Fig. 2** and **Table 1.**

TABLE 1 - Office clips

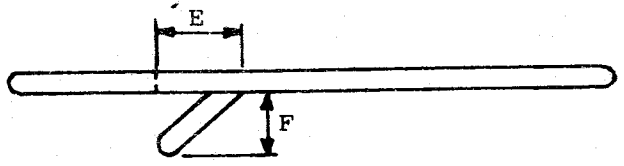
Size	Standard shape				Streamline shape				Triangular shape				Diameter of wire	Lip dimensions	
	A ± 1.5	B min.	C max.	D max.	A ± 1.5	B min.	C max.	D max.	A ± 1.5	B min.	C max.	D max	± 0.02	E max.	F max.
Small	23	5.5	6.0	6.5									0.80 0.90	4.0	2.0
Medium small	27	7.0	7.0	7.0	27	7.5	8.5	2.5	29	8.0	8.0	4.0	0.90	4.0	2.0
Medium large	31	7.0	7.0	7.5					31	8.5	8.5	5.0	0.90	5.0	3.0
Large	35	7.5	7.5	8.0									0.90	5.0	3.0

All dimensions in millimetres





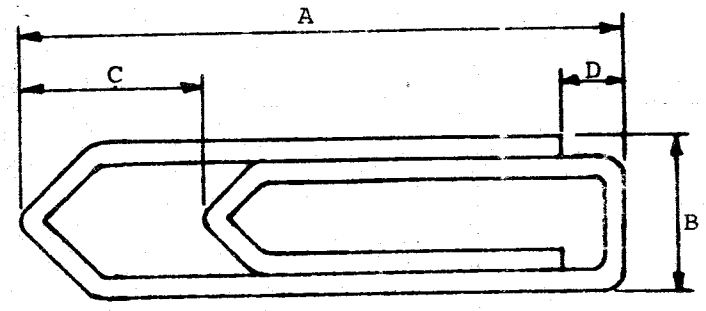
Plan of flat type

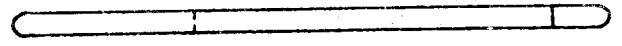


Plan of raised lip type

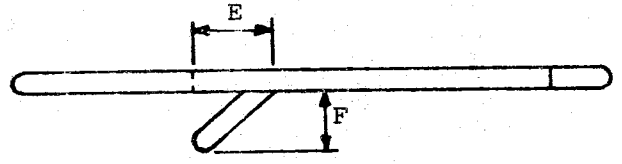
Standard shape

FIGURE 2a





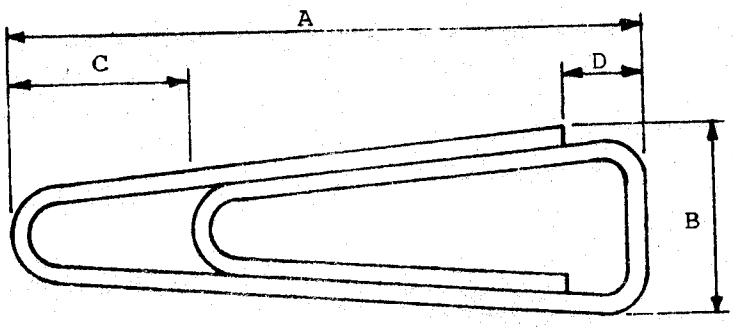
Plan of flat type



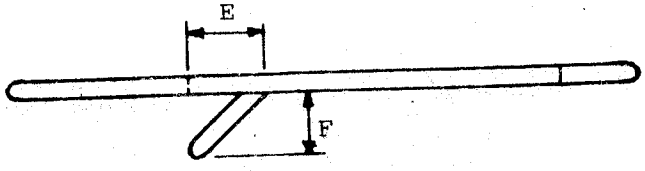
Plan of raised lip type

Streamline shape

FIGURE 2b



Plan of flat type



Plan of raised lip type

Triangular shape

FIGURE 2c

12 PACKING

Clips of the same shape, size and finish, shall be packed in quantities of at least 100 clips in paper board boxes or wrapped in suitable material and securely closed to prevent accidental opening.

13 MARKING

The packs shall be legibly marked with the following information :

a) Manufacturer's name and/or trade mark;

b) The shape and size (length of clip);

c) Finish;

d) Quantity; and

e) Batch or code number.

14 TESTS

14.1 Tearing test (damage to paper test)

The clips shall be clipped over the edge(s) of the paper(s), in the manner for which it was designed, care being taken that the movement and position of the clip is parallel to its length and perpendicular to the edge(s) of the paper(s). Each clip shall be tested twice. The opposite side of the inner loop to that which touches the paper in the first test shall be in contact with the paper in the second test. The sample clip shall be clipped over the sheet(s) as far as possible without wrinkling the paper(s) in each instance by placing the thumbs on the loop on one side of the paper(s) and the forefinger on the loop on the other side of the paper(s), applying pressure equally with both fingers to slide the clip straight from the papers without turning. The clip shall not tear the paper caused by burr or rough edges when it is clipped on to the paper(s) or removed from the paper(s) as described in the test procedure.

The clip shall be tested with 1, 5, 10 and 25 sheets of paper at a time. Paper used in conducting the tests shall be 71 g/m^2 writing paper.

14.2 Strength test

Place the inner loop of a clip on the end of a steel rule and press on the other two loops until the end of inner loop is deflected according to the appropriate extent given below. When the pressure is released the permanent deformation shall not exceed the diameter of the wire. Excessive deformation is indicated if it is possible to see light between the inner and outer loops other than, when relevant at the raised loop. After the deformation and release as required by the test, the clips shall be examined for any peeling off of coating.

The coating shall not have peeled off from any part of the clip.

Length of clip (mm)	Deflection (mm)
23 ± 1.5	4
27 ± 1.5	5
31 ± 1.5	6
35 ± 1.5	7

14.3 Test for coating

The clips shall be introduced in to an air oven at 100 ± 2 °C for five minutes. It shall be removed thereafter from the oven and kept at room temperature for one hour and then examined; the coating shall not have peeled off and shall have remained firmly adherent. Inspection for adherence of coating after the test shall be carried out by rubbing the clips with a piece of dry cotton wool in the direction of the cut ends of the wire applying equal pressure on the thumb and the forefinger, gripping the clip between the cotton wool in such a manner that no sharp edges (*viz.* finger nail) employ concentrated pressure on the clip. The rubbing is repeated five times while examining the coating for peeling or removal of any loose particles from any part of the clip on to the cotton wool, any one of which shall not have occurred. This test shall apply to clips with lacquered or plastic coated finish only.

14.4 Corrosion resistance test

14.4.1 The clip shall be dipped in a solution of mineral spirits to remove any surface film or grease and wiped dry. They shall then be immersed in saline water (0.9 per cent *m/V* of solution of sodium chloride in distilled water) for 5 hours. On removal from the saline water they shall not show any sign of corrosion on the body.

14.4.2 Bend the extremities of the free ends of the clips so that when the clip is used to grip a sheet of paper they will not be in contact with the paper. Slide the clip over the edge of a white hardened filter paper of diameter at least 70-mm, thoroughly moisten the filter paper with distilled water, and place the assembly for a period of at least five hours, in a closed container maintained at a temperature of 27 ± 3 °C. Remove the filter paper from the container, by carefully separating the loops of the clip, remove the clip from the filter paper, and examine the paper for discolouration. The clip shall cause no discolouration of filter paper.

15 SAMPLING

15.1 The raw material wire shall be selected for testing according to procedure given in **Appendix A.**

15.2 Clips

15.2.1 lot : In any consignment all the clips of the same shape, size and finish, manufactured on one date shall be grouped together to constitute a lot.

15.2.2 Boxes/packets of clips shall be selected at random from each lot as given in Table 2 in **Appendix A**. The sample unit shall be one box/packet and ten clips shall be taken at random from each box/packet for examination specified in **16.2** except sample clips which have not been subjected to any test shall be tested for the strength requirements in 14.2.

If there are two or more defectives in the sample of ten clips taken from the box/packet, the whole box/packet shall be considered defective and shall be rejected. If 25 per cent or more samples fail the test given in 14.2, the lot shall be rejected.

16 INSPECTION

16.1 Raw material wire

Test pieces selected as in 15.1 (see **A.1.1.4**) shall be examined for the following:

a) Material, and

b) Diameter.

Any test piece which fails to satisfy the general requirements of this standard in any one of the above characteristics shall be declared as a defective.

16.2 Clips

All clips selected as in 15.2.2 shall be examined for the following:

a) Shape and dimensions;

b) Workmanship and finish; and

c) Tests.

Any clip which fails to satisfy the general requirements of this standard in any one of the above characteristics shall be declared as a defective.

NOTE - Tests on clips shall be carried out in the order, that no test performed shall interfere with or influence the succeeding tests in any way that affects the performance of the clips.

17 CONFORMITY TO STANDARD

17.1 Raw material wire

The coils of the lot shall be declared as conforming to chemical composition, tensile strength and diameter if the number of defective test pieces tested as in 16.1 is less than or equal to the permissible number given in Column 3 of Table 1 in Appendix A.

In case proper quality control of the raw material wire, to the satisfaction of the purchaser or the inspecting officer has been maintained by the manufacturers and the quality was found to be satisfactory as evidenced by suitable certificates accompanying the lot, no tests may be required for the determination of chemical composition, tensile strength and diameter.

17.2 Finished product

The clips of the lot shall be declared as conforming to this standard if the lot of the raw material wire used in the manufacture of the clips conform to the chemical composition, tensile strength, and diameter examined according to 17.1 and if the number of defective boxes/packets of finished clips tested as in 16.2 does not exceed the permissible number given in Column 3 of Table 3 in Appendix A.

17.3 The sampling plan subject to which acceptance of a lot with respect to raw material wire and the other requirements for the finished product is determined in this standard ensure that it will on the long run accept approximately 95 per cent of the lots, of coils and boxes/packets of the product provided the process average level of per cent defective (or number of defectives per 100 items) coils or boxes/packets of the product in these lots is not greater than the Acceptance Quality Level (AQL) value of 2.5 and 6.5 respectively.

APPENDIX A

A.1 SAMPLING

A.1.1 Raw material wire

A.1.1.1 In any consignment or production, coils or wire of the same type and diameter shall constitute a lot.

A.1.1.2 From each lot the number of coils shown in Tables below shall be selected for testing.

A.1.1.3 All these coils shall be taken at random from the lot. To ensure randomness of selection random number tables as given in SLS 428 shall be used.

A.1.1.4 From each coil selected, a test piece shall be cut from one end at a distance of not less than 1 mm from the end and examined according to **9.1** in the case of pins and **14.1** in the case of clips.

TABLE 2 - Scale of sampling and criteria for conformity of raw material wire

No. of coils in the lot	No. of coils to be selected	Permissible no. of defective test pieces
1	2	3
Upto 25	03	0
26 to 50	05	0
51 to 150	08	0
151 to 300	13	1
301 and above	20	1

TABLE 3 - Sample size and criteria for conformity

No. of boxes/packets in the lot	No. of boxes/packets to be selected	Permissible no. of defectives
1	2	3
Upto 50	03	0
51 to 100	05	01
101 to 150	08	01
151 to 300	13	02
301 to 500	20	03
501 and above	32	05

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