SRI LANKA STANDARD 578:1982
UDC 686.865:672.885

SPECIFICATION FOR
STAPLES

BUREAU OF CEYLON STANDARDS

SPECIFICATION FOR STAPLES

SLS 578:1982

Gr. 5

BUREAU OF CEYLON STANDARDS
53, Dharmapala Mawatha,
Colombo 3,
Sri Lanka.

CONSTITUTION OF THE DRAFTING COMMITTEE

CHAIRMAN	*REPRESENTING*
Mr. M.R. Arthenayake	University of Moratuwa
MEMBERS	
Mr. H.S.P. de Alwis	Ceylon Steel Corporation
Mr. G.A.K. Padmaperuma	Colombo Commercial Co.
Mr. P. Thanikasalam	Brown & Co. Ltd.
Mr. N.A.P.M. Silva	Agricultural Work Shop

TECHNICAL SECRETARIAT

BUREAU OF CEYLON STANDARDS

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
SPECIFICATION FOR STAPLES

FOREWORD

This Sri Lanka Standard specification was authorised for adoption and publication by the Council of the Bureau of Ceylon Standards on 1982-09-30, after the draft, finalised by the Drafting Committee on Staples/Split Pins, had been approved by the Mechanical Engineering Divisional Committee.

All values in this specification have been given in SI units.

For the purpose of deciding whether a particular requirement of this specification 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 values shall be the same as that of the specified value in this specification.

The assistance derived from the Indian Standards Institution and the South African Bureau of Standards in the preparation of this specification is gratefully acknowledged.

1 SCOPE

This specification covers the requirements and methods of test for staples for use on stapling machines.

2 REFERENCES

CS 76 Method for tensile testing of steel wire

CS 102 Presentation of numerical values

3 DEFINITIONS

For the purpose of this specification, the following definitions shall apply:

3.1 leg : The two bent edges of the staple that pierce through papers (see Fig. 1).

3.2 crown : The portion between two legs (see Fig. 1)

4 TYPES

The staples shall be of two types as follows;

a) Light duty; and

b) Heavy duty.

5 REQUIREMENTS

5.1 Material

5.1.1 Staples shall be made of tinned, galvanized or coppered steel wire conforming to the chemical composition and tensile strength given in Table 1.

TABLE 1 - Chemical composition and tensile strength

Type	Constituent, per cent, max.				Tensile strength MPa
	Carbon	Manganese	Sulphur	Phosphorous	
Light duty	0.25	0.90	0.06	0.06	590 - 880
Heavy duty	0.60	0.90	0.05	0.05	1175 - 1570

5.2 Shape and dimensions

The shape and dimensions of the two type of staples are given in Fig. 1 and Table 2 respectively.

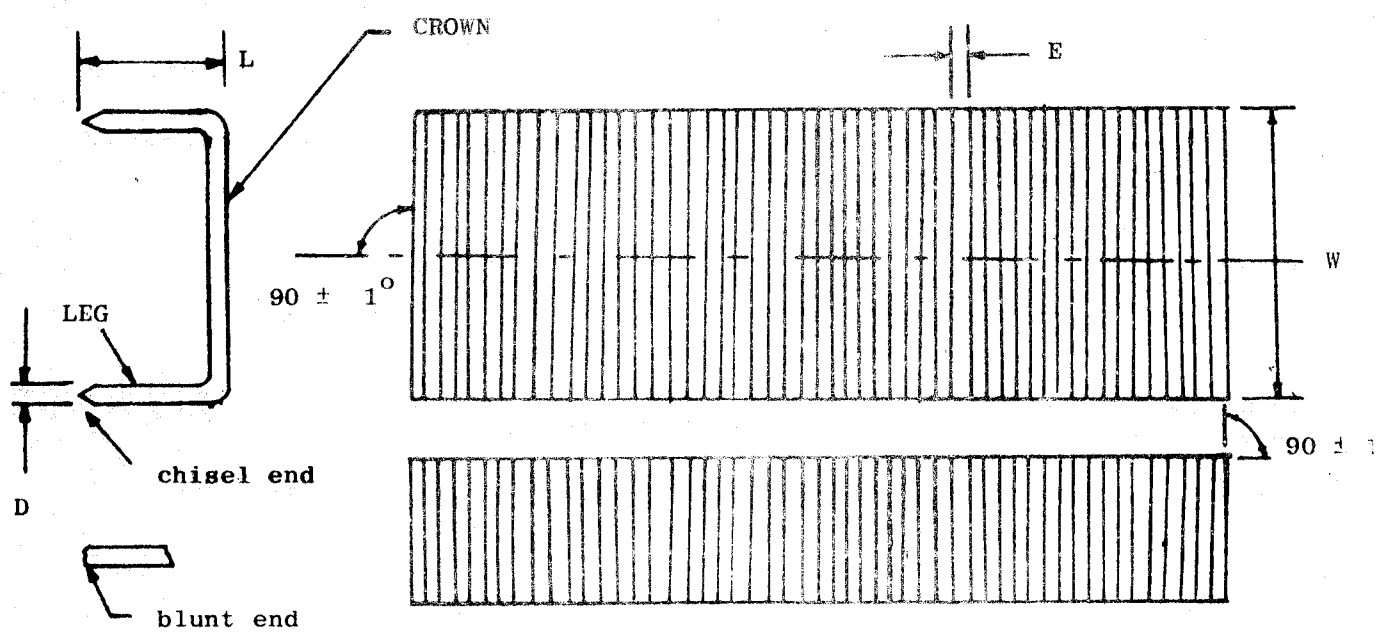

FIGURE 1 - Staples

TABLE 2 - **Dimensions of staples**

(All dimensions are in millimetres)

Type	W + 0.0 - 0.1	L	Diameter of wire	After fabrication	
				D + 0.00 - 0.05	E + - 0.05
Light duty	9.5	4.8 ± 0.2	0.45 ± 0.010	0.30	0.5
	13.0	6.0 ± 0.2	0.63 ± 0.015	0.45	0.7
Heavy duty	13.0	8.0 ± 0.2	0.80 ± 0.015	0.55	0.8
	13.0	10.0 ± 0.3	0.80 ± 0.015	0.55	0.8
	13.0	12.0 ± 0.3	0.80 ± 0.015	0.55	0.8
	13.0	15.0 ± 0.4	0.80 ± 0.015	0.55	0.8
	13.0	17.0 ± 0.4	0.80 ± 0.015	0.55	0.8

5.3 Workmanship and assembly

The staples shall have legs that are parallel and at right angles to the crown. Both ends of staples shall have either blunt or chisel point ends (see Fig. 1). Staples shall be preformed and cemented together one behind the other to make an assembly in the form of a channel. The cementing of staples shall be smooth and even and such that the staples adhere to each other without loosening in handling while being fitted into the stapling machine. Also the cementing shall be such as to afford easy exit of the staples from the vertical chute without clogging and jaming the stapling machine.

5.4 Performance

When tested in accordance with performance test described in 8.1 the staples shall clinch to a firm seat without buckling or fracturing of the crown or leg and without maloperation of stapling machine caused by blocking of the chute.

6 PACKING

Staples shall be packed in boxes of acceptable quality as agreed to between the purchaser and the supplier.

7 MARKING

The following information shall be marked to appear legibly and indelibly on each box.

a) The manufacturer's name and address;

b) Trade name or trade mark, if any;

c) The type and size (width & length) of staples;

d) The quantity; and

e) Any other additional markings required by the purchaser.

8 TESTS

8.1 Performance test

8.1.1 *Penetration test*

A representative assembly of staples are inserted in an appropriate stapling machine to produce the standard clinch. The entire assembly of staples is driven and clinched to a firm seat through white printing paper of substance 50 g/m^2.

The test is carried out for each type of staples using the number of papers indicated in Table 3.

TABLE 3 - Number of papers to be used in penetration test

Type and leg size in mm		No. of papers
Light duty	4.8	15
	6.0	20
Heavy duty	8.0	25
	10.0	40
	12.0	80
	15.0	120
	17.0	160

All staples shall penetrate and clinch to the sets of paper without buckling or fracturing of the crown or leg and shall not show any malformation.

8.1.2 *Holding power test*

The number of white printing paper of substance 50 g/m^2 to be used and the pull to be applied for both types of staples shall be in accordance with Table 4. The set of paper is folded and stapled, and one end of the set of paper is fixed and on the other side, a pull is applied as shown in Fig. 2. The staples shall not bend or get damaged when the pulls as indicated in Table 4 are applied.

TABLE 4 - Number of papers to be used and pull to be applied in holding power test

Type and leg size in mm		No. of papers	Pull in N
Light duty	4.8	8	10
	6.0	10	20
Heavy duty	8.0	13	24
	10.0	20	28
	12.0	40	34
	15.0	60	40
	17.0	80	46

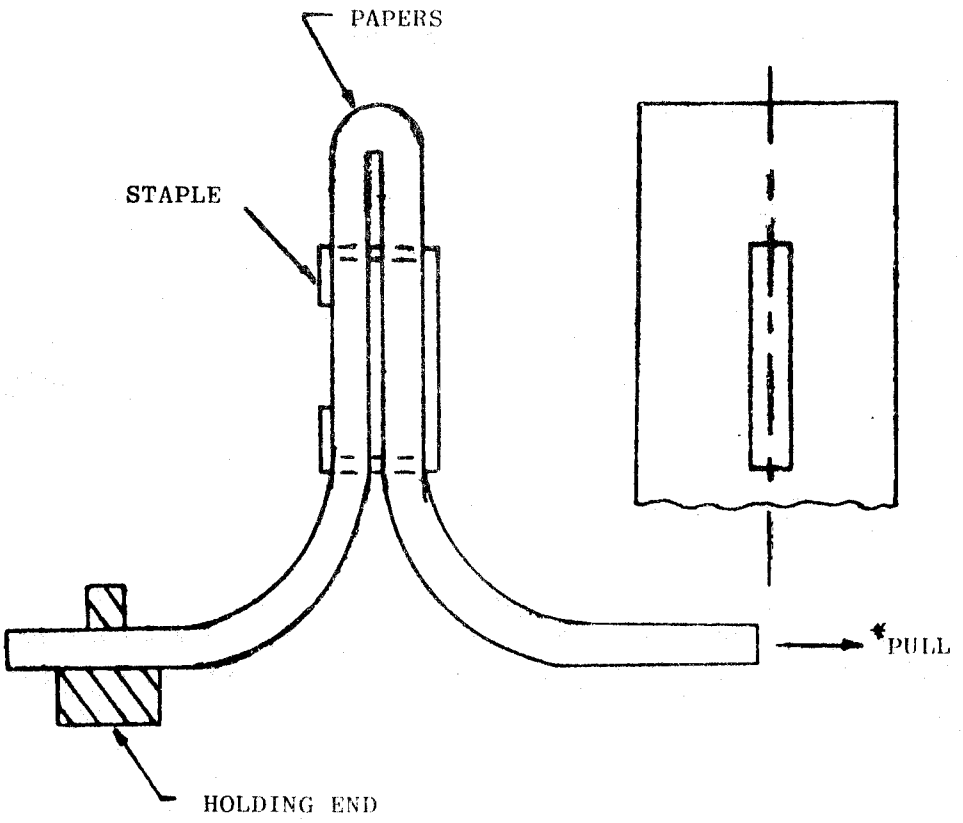

FIGURE 2 - Holding power test for staple

*Apply load in a plane passing through and perpendicular to the vertical axis of the staple.

8.2 Corrosion resistance test

The staples are immersed in a 5 per cent aquous solution of sodium chloride at room temperature. The staple shall not show any sign of rusting, on inspection after five hours.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

Printed at SLSI (Printing Unit)

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.