SRI LANKA STANDARD 764 : 1986

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SPECIFICATION FOR
FILE CORDS

SRI LANKA STANDARDS INSTITUTION

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SLS 764:1986

Gr. 6

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

SRI LANKA STANDARD
SPECIFICATION FOR FILE CORDS

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1986-12-17, after the draft, finalized by the Drafting Committee on File Cords, had been approved by the Textiles Divisional Committee.

In this specification, colour of the lace and plating of tags have been left open to be agreed between the purchaser and the supplier.

All standard values given in this specification are 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 analysis, shall be rounded off in accordance with **CS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this specification.

In the preparation of this specification, the assistance obtained from the publications of the Indian Standards Institution is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements and methods of sampling and test for file cords used for fastening loose papers.

2 REFERENCES

CS 22 Determination of breaking load and extension of yarns from packages

CS 63 Determination of colour fastness of textile materials to rubbing

CS 67 Determination of colour fastness of textile materials to perspiration

CS 102 Presentation of numerical values

SLS 428 Random sampling methods

3 REQUIREMENTS

3.1 Manufacture

3.1.1 *Lace*

3.1.1.1 Single or plied cotton yarn shall be used in the manufacture of the lace of the file cord. The lace shall be without cores and shall be manufactured by twisting or by braiding the yarn.

3.1.1.2 The colour of the lace shall be as agreed to between the purchaser and the supplier.

3.1.2 *Tag*

3.1.2.1 Both ends of the lace shall be provided with metallic or plastic tags, fixed firmly along or across the lace. The lace shall not protrude more than 2 mm out of the tag.

3.1.2.2 The tags shall be rustproof, smooth and free from surface defects. The metallic sheets used for tags may be plated as agreed to between the purchaser and the supplier.

3.1.2.3 Both tags of a file cord shall be of equal length and the length of a tag shall not be less than 20 mm.

3.2 Length

File cords shall be supplied in one of the following nominal lengths or in any other length as agreed to between the purchaser and the supplier. Nominal lengths -25 mm, 90 mm, 165 mm, 305 mm, 460 mm and 610 mm.

3.3 Mass

The lace shall weigh not less than 0.8 g/m and not more than 2.8 g/m.

3.4 Other requirements

File cords shall also conform to the requirements given in Table 1, when tested according to the methods given in Column 4 of the table.

TABLE 1 - Requirements for file cords

Sl. No. (1)	Characteristic (2)	Requirement (3)	Method of test (4)
i)	Breaking strength, *N*, min.	125	CS 22(see Note)
ii)	Slip resistance, *N*, min.	3	Appendix B
iii)	Gripping strength, *N*, min.	30	Appendix C
iv)	Colour fastness to		
	a) rubbing	4 or better	CS 63
	b) perspiration	4 or better	CS 67

NOTE - Set the grips of the testing machine to give a specimen test length of 100 mm, instead of 500 mm.

4 PACKAGING

Hundred cords or any other number as agreed to between the purchaser and the supplier shall be packed in bundles or in a manner acceptable to the purchaser. Only the file cords of the same length shall be packed together.

5 MARKING

5.1 Each package shall be marked legibly and indelibly with the following information:

a) Name of the product, including a description of the tag (see 3.1.2.1);

b) Manufacturer's name and address (including the country of origin);

c) Registered trade mark, if any;

d) Length of a file cord, in millimetres;

e) Number of file cords; and

f) Batch or code number.

5.2 Each package may also be marked with the Certification Mark of the Sri Lanka Standards Institution illustrated below on permission being granted for such marking by the Sri Lanka Standards Institution.

NOTE - The use of the Sri Lanka Standards Institution Certification Mark (SLS Mark) is governed by the provisions of the Sri Lanka Standards Institution

Act and the regulations framed thereunder. The SLS mark on products covered by a Sri Lanka Standard is an assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control, which is devised and supervised by the Institution and operated by the producer. SLS marked products are also continuously checked by the Institution for conformity to that standard as further safeguard. Details of conditions under which a permit for the use of the Certification Mark may be granted to manufacturers or processors may be obtained from the Sri Lanka Standards Institution.

6 SAMPLING

The method of drawing representative samples of the material for ascertaining conformity to this specification shall be as prescribed in Appendix A.

7 METHODS OF TEST

Tests for the requirements specified in 3.3 shall be carried out by the methods prescribed therein.

8 CRITERIA FOR CONFORMITY

A lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied:

8.1 Each package inspected as in A.3.1 satisfies the relevant requirements.

8.2 The number of cords not conforming to one or more requirements given in 3.1.2 when inspected as in A.3.2 do not exceed the corresponding acceptance number given in Column 4 of Table 2.

8.3 The value of the expression, $\bar{x} - 0.8s$, calculated using the measured values of length of cords is not less than the specified value.

NOTES

1 *Mean* $(\bar{x}) = \dfrac{\text{Sum of the observed values}}{\text{Number of values}}$

2 *Standard deviation (s) = The positive square root of the quotient obtained by deviding the sum of squares of the deviations of the test results from their arithmetic mean, by one less thant the number of test results.*

8.4 The values of the expressions $\bar{x} + 0.8s$ and $\bar{x} - 0.8s$ calculated using the test results on mass when tested as in A.3.5 lie between the limits given in 3.2.

8.5 The value of the expression $\bar{x} - 0.8s$ calculated using the test results on breaking strength, slip resistance and gripping strength when tested as in A.3.3 and A.3.5 are not less than the corresponding limits given in this specification.

8.6 Cords tested as in A.3.4 satisfy the requirement for colour fastness to rubbing.

8.7 Each cord tested as in A.3.5 satisfies the requirement for colour fastness to perspiration.

APPENDIX A

SAMPLING

A.1 LOT

In any consignment all file cords of the same length and belonging to one batch of manufacture shall constitute a lot.

A.2 SCALE OF SAMPLING

A.2.1 Samples shall be tested from each lot for ascertaining its conformity to the requirements of this specification.

A.2.2 The number of cords to be selected from a lot shall be in accordance with Column 1 and Column 2 of Table 2.

TABLE 2 - Scale of sampling

Number of cords in the lot (1)	Number of cords to be selected (2)	Sub-sample size (3)	Acceptance number (4)
Up to 1 000	70	30	3
1 001 - 3 000	80	40	4
3 001 - 10 000	90	50	5
10 001 and above	120	80	7

A.2.3 Five per cent of the packages subject to a minimum of two shall be selected from the lot and as far as possible an equal number of cords shall be selected from each package so selected to form a sample of size as given in Column 2 of Table 2.

A.2.4 The packages shall be selected at random. In order to ensure randomness of selection tables of random number as given in SLS 428 shall be used.

A.3 NUMBER OF TESTS

A.3.1 Each package selected as in A.2.3 shall be inspected for marking requirements (This may be done at the place of sampling).

A.3.2 A sub sample of size as given in Column 3 of Table 2 shall be selected at random from the cords selected as in **A.2.3** and the cords thus obtained shall be inspected for the requirements given in **3.1.2** and measured for the requirement for length.

A.3.3 Each cord selected as in **A.3.2** shall be tested for breaking strength.

NOTE - In the case of cords having lengths less than 100 mm, a sufficient length of the lace shall be submitted for testing breaking strength and slip resistance.

A.3.4 Twenty cords shall be selected at random, from the cords selected as in **A.2.3** and tested for colour fastness to rubbing.

A.3.5 Four sub samples each having five cords shall be selected from the cords selected as in **A.2.3** and the cords of the sub samples shall be tested for the following requirements (one sub sample for one requirement).

a) Mass;

b) Slip resistance; (see Note to **A.3.3**)

c) Gripping strength; and

d) Colour fastness to perspiration.

APPENDIX B

DETERMINATION OF SLIP RESISTANCE

B.1 APPARATUS

B.1.1 *Power driven tensile strength testing machine*, with a rate of traverse of 115 ± 12 mm/min. and a clamp with a 1 kg mass for application of tension to the specimen.

B.2 PROCEDURE

Form a slip knot (see Fig. 1) in the centre of the specimen. Clamp one end **A** of the specimen centrally in the upper jaw. Then suspend the 1 kg mass for a period of 10 seconds at **B**. Remove the 1 kg mass and clamp the free hanging end **C** of the specimen centrally in the pulling jaw. Operate the machine and record the highest load registered during the slipping of the first 20 mm of the lace through the slip knot. Continue to operate the machine till the knot is undone.

Take the average of six results as the slip resistance of the cord tested.

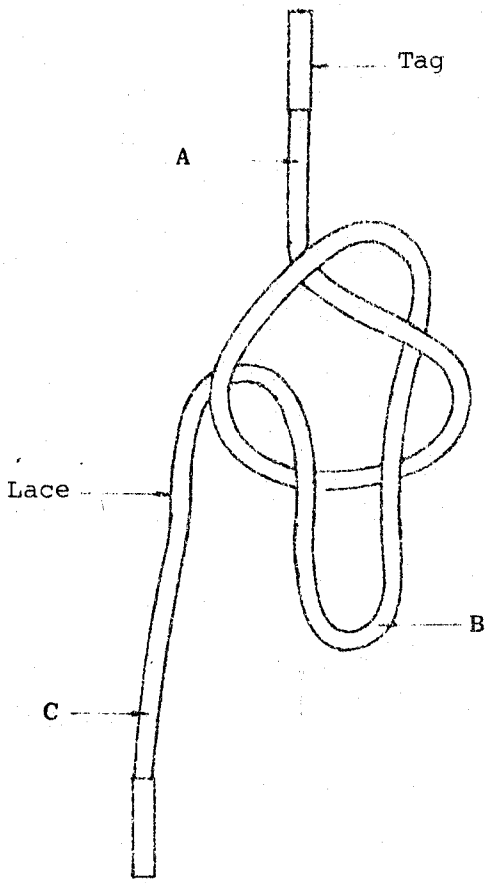


FIGURE 1 - Slip knot

APPENDIX C

DETERMINATION OF GRIPPING STRENGTH

C.1 APPARATUS

C.1.1 *Power driven tensile strength testing machine*, with a rate of traverse of 115 ± 12 mm/min.

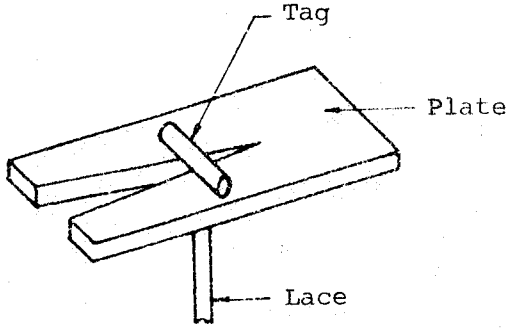
C.1.2 *Slotted plate*, a rigid metal plate (see Fig. 2) of suitable dimensions with a vertical tapered edge slot along the length of the plate, to be used in conjunction with the tensile testing machine in such a manner as to keep the slot at right angle to the direction of application of load during the test.

C.2 PROCEDURE

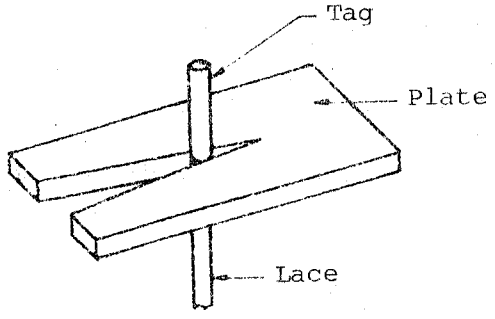
Place the file cord in such a way that the two sides of the tag (see Fig. 2a) or the end of the tag (see Fig. 2b) as the case may be, rests on the slotted plate. Centre the plate so that the longitudinal axis of the test specimen is along the axis of the application of the load. Apply by hand an initial tension sufficient to straighten the lace portion. Clamp the free end of the straightened specimen in the pulling jaw so that the free distance between the upper grip and the pulling jaw is 100 mm at the start of the test. Operate the machine and record the highest load registered before the tag is pulled. Discard the result and test another specimen if:

a) the tag slips through the slot without being removed from the lace, or

b) the tag buckles at the base or the tag is scrapped without being removed from the thread portion before the specified minimum gripping strength is reached.



2(a)



2(b)

FIGURE 2 - Slotted plate

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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.*

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SRI LANKA STANDARDS INSTITUTION

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