SRI LANKA STANDARD 700:1985

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SPECIFICATION FOR
JUTE BAGS

SRI LANKA STANDARDS INSTITUTION

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SLS 700:1985

Gr. 7

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SRI LANKA STANDARD

SPECIFICATION FOR JUTE BAGS

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1985-07-26, after the draft, finalized by the Drafting Committee on Jute Bags, had been approved by the Textiles Divisional Committee.

All values 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

1.1 This specification prescribes requirements, methods of sampling and tests for jute bags.

1.2 It covers three types of jute bags made from double-warp, plain-weave jute sacking material.

2 REFERENCES

CS 41 Determination of the number of threads per inch in woven fabric

SLS 42 Determination of mass per unit length and per unit area of woven or knitted fabrics (first revision)

CS 43 Determination of breaking load and extension of strips of woven textile fabric

CS 102 Presentation of numerical values

SLS 428 Random sampling methods.

3 DEFINITIONS

3.1 bale : A rectangular or square-pressed rigid package, containing jute bags, suitably covered with bale covering, and bound by metal hoops in accordance with 6.5.

3.2 bundle : A package without covering or wrapping, consisting of a number of bags suitably tied or stitched together.

3.3 contract mass (bale) : Mass obtained by multiplying nominal mass of a bag by the specified number of bags per bale.

3.4 dead mass volume (bale) : Volume calculated from contract mass of a bale on the basis of 1.3935 m^3 to a tonne.

3.5 corrected net mass (bale) : The mass obtained by adjusting the actual net mass on the basis of actual moisture regain to the contract regain.

3.6 contract regain : The contract moisture regain is the percentage regain on the basis of which the corrected net mass is calculated.

4 TYPES

This specification covers the following three types of jute bags :

Type 1 - bags intended for packing flour

Type 2 - bags intended for packing sugar

Type 3 - bags intended for packing paddy, rice and other grains.

Note - Different quantities of materials to be packed in the above types of jute bags are given in Appendix C.

5 REQUIREMENTS

5.1 General requirements

5.1.1 *Sacking*

5.1.1.1 The bags shall be made from a single piece of double-warp plain-woven jute sacking of uniform construction. Twine having a linear density between 1.3 ktex and 2.8 ktex is suitable for the sacking.

5.1.1.2 The warp shall run along the length of the bag.

5.1.2 *Seam*

The sides of the bags shall be sewn with overhead stitches on selvedge through two layers of sacking (see Fig. 1), using two strands of *3-ply* jute twine of 380 tex x 3. The stitching shall be even in tension throughout with all the loose ends securely fastened. The number of stitches per decimetre at the sides shall be between 9 and 11.

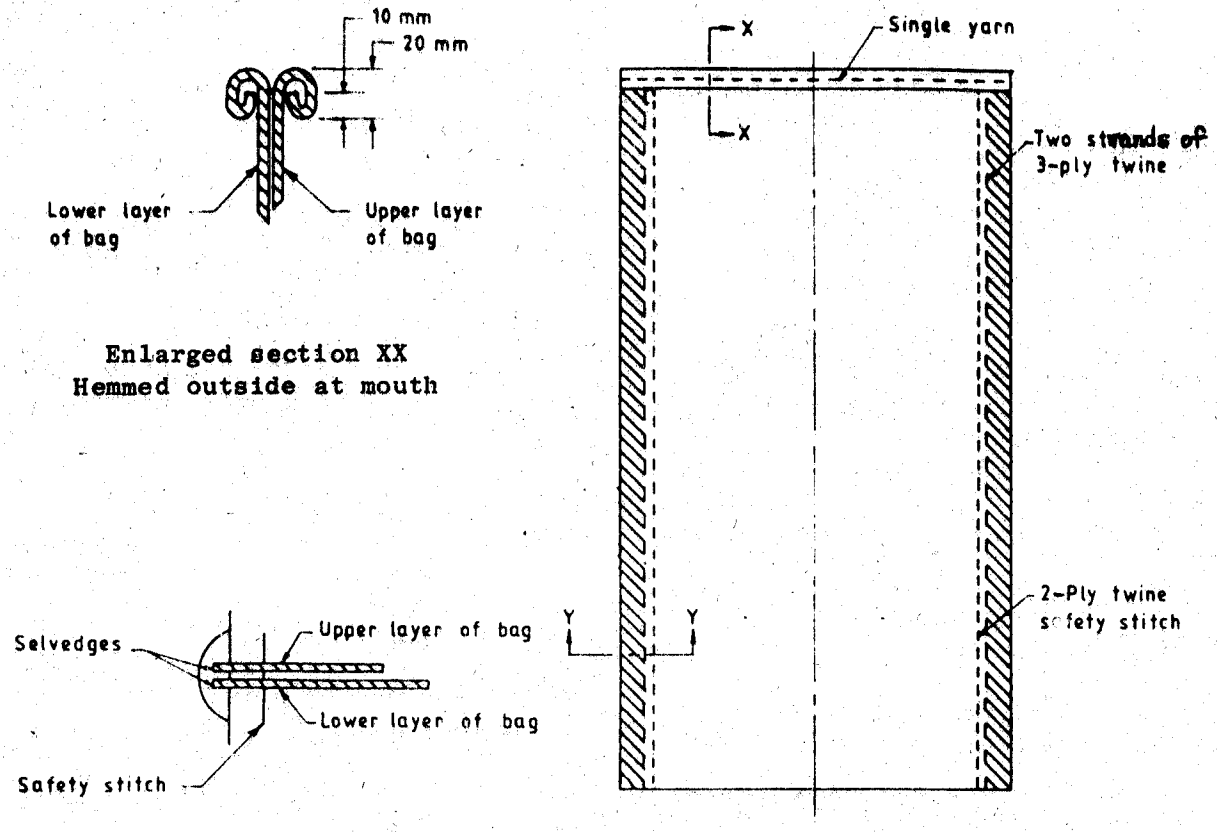


FIGURE 1 - Section through two layers of sacking

5.1.3 *Safety stitch*

A line of safety stitches shall be provided at the inner edges of the overhead stitches using *2-ply* jute twine of 275 tex x 2 to 345 tex x 2, (see Fig. 1). The number of safety stitches per decimetre shall be between 9 and 11.

5.1.4 *Hemming at the mouth*

At the mouth of the bag, the raw edges of sacking shall be turned over first to a depth of about 10 mm and then to a depth of about 20 mm and the three layers of sacking thus formed, shall be hemmed, with jute yarn of 275 tex to 345 tex. The number of stitches per decimetre in the hem shall be between 9 and 11.

5.1.5 *Joined bag*

The seam used to join the two pieces in a joined bag shall have a minimum strength equal to that of the sacking and shall be sufficiently tight to prevent leakage of the contents.

5.1.6 *Freedom from defects*

The bags shall be generally free from weaving defects, such as holes, cuts, tears, floats, crushed selvedge, spots and stains. The bags shall also be generally free from sewing defects such as gap stitch, loose ends and frayed ends.

5.2 Specific requirements

5.2.1 *Requirements of sacking and bags*

The sacking and bags of different types shall conform to the requirements given in Table 1.

TABLE 1 - Requirements of sacking and bags

Sl No.	Characteristics	Requirements			Methods of test
		Type 1	Type 2	Type 3	
(1)	(2)	(3)	(4)	(5)	(6)
1	Dimensions of a bag:*				
	a) Outside length, mm	$1\ 120^{+30}_{-0}$	$1\ 120^{+30}_{-0}$	$1\ 120^{+30}_{-0}$	
	b) Outside width, mm	675^{+30}_{-0}	675^{+30}_{-0}	675^{+30}_{-0}	B.6
2	Mass per bag, g	1 000±100	1 200±100	1 000±100	B.4
3	Ends per dm	68±4	102±6	68±4	B.7
4	Picks per dm	31±2	35±2	31±2	B.7
5	Breaking load of sacking, Newton, min.				
	a) Warp way	1 600	2 000	1 600	B.8
	b) Weft way	1 400	1 800	1 400	
6	Breaking load of seam, Newton, min.	530	660	625	B.9
7	Mass per unit area, kg/m^2	0.65 ± 0.05	0.65 ± 0.05	0.65 ± 0.05	SLS 42

**The buyer and seller may agree on dimensions other than those specified provided that the same tolerance of $^{+30}_{-0}$ mm shall apply.*

5.2.2 *Moisture regain*

The moisture regain shall be not more than 22 per cent when determined in accordance with B.3.

5.2.3 *Oil content*

Oil content on dry deoiled material basis shall be not more than 8 per cent, when tested in accordance with B.10.

6 PACKAGING

6.1 The bags shall be packed into bales of 400 bags or as agreed to between the buyer and the seller.

6.2 The bags shall be made up into bundles of 25 each or as agreed to between the buyer and the seller. The bags shall be laid either flat or folded one over the other.

6.3 A bale may contain joined bags subject to a maximum of 4 per cent of the total number of bags in a bale, with not more than one joined bag in a bundle of 25 bags.

6.4 The bales shall be completely covered on all sides with a covering made up of jute fabric or any other suitable material.

6.5 The bale shall be securely bound with steel strips (hoops) placed at right angles to the length of the bale. The outside strips shall be approximately 100 mm x 150 mm from each end of the bale and the intermediate strips shall be so placed as to be approximately equidistant from one another and from the strips of the extreme ends. The number of strips on a bale shall not be less than that specified in Table 2.

TABLE 2 - Number of bailing strips

Bale length, mm (1)	Number of strips (2)
From 700 mm to 900 mm	3
Over 900 mm to 1 100 mm	4
Over 1 100 mm to 1 450 mm	5
Over 1 450 mm to 1 950 mm	6
Over 1 950 mm to 2 450 mm	7

6.6 Bales shall be compressed to a dead mass volume. Excessive pressure so as to cause damage to the contents, such as press or hoop cutting or crushed selvedges shall be avoided.

7 MARKING

Unless otherwise agreed to between the buyer and the seller, the following information shall be marked legibly and indelibly on two sides of a bale with blue or black, non-toxic and water-insoluble ink. The height of the letters and figures shall be not less than 75 mm.

a) Name of manufacturer or supplier;

b) Country of origin;

c) Number of bags;

d) Contract mass in kilograms;

e) Buyer's name, initials or identifying mark;

f) Bale number; and

g) Any other particulars as required by the buyer.

8 SAMPLING

Unless otherwise agreed to between the buyer and the seller, the procedure for sampling shall be as given in Appendix A.

9 METHODS OF TEST

Tests shall be carried out as specified in Appendix B.

10 CONFORMITY TO STANDARD

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

10.1 Mass of bales

The total of the corrected net mass of the bales under test is not less than the total contract mass of the bales.

10.2 Number of bags per bale

The number of bags in each bale under test is not less than the specified number.

10.3 Number of joined bags per bundle

The number of joined bags in each bundle of bags under test is not more than the specified number.

10.4 Moisture regain, oil content, ends and picks, breaking load, mass per unit area

Average value of test results for each requirement satisfies the relevant value specified in this specification.

10.5 Dimensions of bags

The dimensions of at least 90 per cent of the bags under test are in accordance with the requirements specified. In the ramaining bags, no bag shall have dimensions less than 15 mm below the specified value.

10.6 Mass of bags

The mass of at least 90 per cent of the bags under test is in accordance with the requirements specified. In the remaining bags, no bag shall have a mass less than 10 per cent below the specified value.

APPENDIX A

SAMPLING

A.1 LOT

All bales of jute bags of the same type containing the same number of bags delivered to one buyer against one despatch shall constitute a lot.

A.2 SCALE OF SAMPLING

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

A.2.2 For evaluation of the gross mass of bales 10 per cent of the bales shall be selected from the lot.

A.2.3 For assessing the conformity to the requirements other than gross mass of bales, the number of bales to be selected from the lot shall be in accordance with Table 4.

TABLE 4 - Scale of sampling for requirements other than gross mass of bales

Number of bales in the lot (1)	Number of bales to be selected (2)
Up to 100	3
101 to 150	4
151 to 200	5
201 to 250	6
251 to 300	7
301 to 350	8
351 to 400	9
401 and above	10

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

A.3 NUMBER OF TESTS

A.3.1 Determination of gross mass of bales shall be carried out on each of the bales selected as in A.2.2.

A.3.2 Determination of tare mass of bales shall be carried out on each of the bales selected as in A.2.3.

A.3.3 Four sub-samples of bags shall be drawn at random as given in Column 2 of Table 5, from the bales selected as in A.2.3 and tested for requirements given in Column 3 of Table 5.

TABLE 5 - Selection of sub-samples

Sub-sample number (1)	Sub-sample size (2)	Requirements (3)
1	Two bundles of bags from each bale	Total number of bags per bale and number of joined bags per bale.
2	Ten bags from each bale	Moisture regain, length and width.
3	10 per cent of bags from bale	Ends and picks, mass per bag.
4	One bag from each bale	Breaking load-sacking, Breaking load - seam, Oil content-per cent.

APPENDIX B

TESTING AND INSPECTION

B.1 TESTING AND INSPECTION PROCEDURE

B.1.1 Testing and inspection of the lot as laid down below shall be carried out on the samples drawn in accordance with Appendix A.

B.2 MASS OF BALES

B.2.1 Determine the total gross mass of the bales in the test sample (see A.2.2) from the gross mass of each bale taken upto the nearest kilogram (W_g).

B.2.2 Remove the baling hoops and all other packing materials of the bales in the sample (see A.2.3) and weigh them together upto the nearest kilogram. Calculate the average tare mass of bale. Multiply by the number of bales weighed in B.2.1 to obtain the total tare mass of the bales (W_t).

B.2.3 The total net mass of bales under test $W_n = (W_g - W_t)$.

B.2.4 Determine the total corrected net mass (W) of bales under test by the following formula :

$$W = \frac{W_n \times (100 - \text{Contract regain, per cent})}{100 + \text{Average moisture regain, per cent of bales (see B.3)}}$$

NOTE - The contract regain shall be 20 per cent unless otherwise stated in the contract.

B.3 MOISTURE REGAIN

B.3.1 Determine the moisture content of each bag on openning the bales by the use of a suitable moisture meter.

NOTE - Moisture meters used in textile industry will serve the purpose in case of jute bags.

B.3.2 Calculate the moisture regain by using the following formula :

$$\text{Moisture regain} = \frac{\text{Moisture content} \times 100}{100 - \text{Moisture content}}$$

B.4 MASS PER BAG

B.4.1 Weigh each bag to the nearest 5 g after tests for B.2 and B.3.

B.5 NUMBER OF BAGS AND JOINED BAGS PER BALE

Count the number of bundles of bags in each bale and number of bags and joined bags in each bundle. From the above, determine the total number of bags in each bale under test.

B.6 LENGTH AND WIDTH

Lay each bag flat on a table, free creases and wrinkles and measure the outside length and outside width about the centre to the nearest 5 mm.

B.7 ENDS AND PICKS

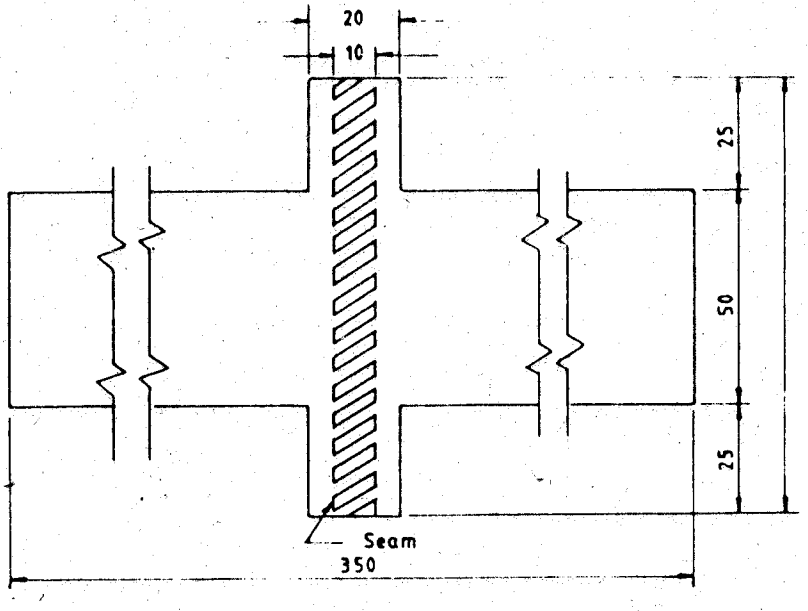
Count the ends and picks from each bag in accordance with CS 41.

B.8 BREAKING LOAD OF SACKING

B.8.1 Test from each bag two warp way and weft way specimens for breaking load in accordance with CS 43.

B.9 BREAKING LOAD OF SEAM

B.9.1 Take one test specimen of double *T* shape from each side of a bag taking 100 mm of seam and 50 mm width of fabric as shown in Fig. 2.



All dimensions in millimetres

FIGURE 2 - Size and shape of test specimen for seam strength

B.9.2 Keep the jaws of the apparatus at a distance of 200 mm and mount the test specimens shown in Fig. 2 with the seam parallel to the jaws, and determine the breaking strength of the seam as prescribed in CS 43.

B.9.3 Discard the result on any specimen that slips in the clamps or that breaks at any point on the specimen other than that on the seam. When results are discarded, repeat the test on a replacement test specimen taken (if practicable) from the same part of the test sample as the discarded specimen.

B.10 OIL CONTENT

From each bag take one representative strip and determine the oil content by Soxhlet extraction using trichloroethylene as solvent. Calculate the oil content as a percentage of dry deoiled material by using the following formula.

$$\text{Oil content, per cent, dry deoiled material basis} = \frac{m_o}{m_d} \times 100$$

where, m_o is mass, in g, of the extracted material (including natural fat and wax and batching oil); and

m_d is oven-dry mass, in g, of the fabric after extraction.

NOTE - Oven dry mass is the constant mass of a bag obtained by drying at a temperature of 105 °C to 110 °C.

APPENDIX C

QUANTITY OF MATERIAL TO BE PACKED IN JUTE BAGS

TABLE 6

Type	Material	Quantity (gross mass), kg
1	Flour	67
2	Sugar	100
3	Rice	70
	Paddy, cowpea, dhal, gingelly, green gram, kurakkan, maize, and soya bean	50
	Other grains not mentioned above	Depends on bulk density of the material and shall be as agreed to between the buyer and seller.

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SRI LANKA STANDARDS INSTITUTION

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