IS 11420-1 to 9 (1985): Coir Mats [TXD 25: Coir and Coir Products]

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Indian Standard

SPECIFICATION FOR COIR MATS

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SPECIFICATION FOR COIR MATS

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Indian Standard

SPECIFICATION FOR COIR MATS

0. FOREWORD

0.1 This Indian Standard (Parts 1 to 9) was adopted by the Indian Standards Institution on 10 September 1985, after the draft finalized by the Coir and Coir Products Sectional Committee had been approved by the Textile Division Council.

0.2 In the present specification the various varieties of coir mats have been covered in the different parts to bring them in line with the current trade and manufacturing practice. This was done by amalgamating various standards on coir mats as shown in **0.4.**

0.3 Part 1 of this specification covers terminology, requirements of dimensions, marking and labelling, packing, sampling, and criteria for conformity and methods of tests.

0.4 The general and specific requirements for various varieties of mats have been covered in the subsequent parts of the standard. Parts 2 to 6 and Part 9 supersede the standards shown against each:

Part No.	*IS : No.*
2	IS : 2958-1964
3	IS : 1858-1968
4	IS : 16[illegible]3-1974
5	IS : 2956-1964
6	IS : [illegible]797-1968
7	IS : Mesh mats*
8	IS : Rope mats (Lover's knot mats)*
9	IS : 2957-1964

0.5 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, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Two new varieties of mats known as Mesh mats and Rope mats (Lover's knot mats) have been covered as Part 7 and Part 8 of the specification.

†Rules for rounding off numerical values (*revised*).

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Indian Standard

SPECIFICATION FOR COIR MATS

PART 1 GENERAL REQUIREMENTS

1. SCOPE

1.1 This standard (Part 1) covers general considerations like terminology requirements of dimensions, marking or labelling and packing clauses and various methods of tests.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Alapet Yarn — Wheel or hand spun 2-ply yarn, medium twisted, made out of retted coir fibre, varying in colour from bright natural to darkish grey, usually spun in 11 to 15 score.

2.2 Anjengo Yarn — Wheel spun 2-ply yarn, hard twisted, made out of long stapled well retted coir fibre, of uniform texture, natural bright coloured, usually spun in 12 to 20 score.

2.3 Aratory Yarn — Wheel spun 2-ply yarn with medium twisted single strand and hard twisted in doubling, made out of long or medium stapled retted coir fibre, appreciably hairy, light natural coloured, usually spun in 11 to 18 score.

2.4 Ashtamudy Yarn — Wheel spun 2-ply yarn, medium twisted, made out of medium and short stapled retted coir fibre, slightly varying in colour from brownish to grey, usually spun in 8 to 13 score.

2.5 Baypore Yarn — Wheel or hand spun, soft twisted, 2-ply yarn, made out of retted coir fibre, natural brown to light grey in colour, usually spun in 6 to 9 score.

2.6 Beach Yarn — Wheel or hand spun, soft twisted, 2-ply yarn, made out of coir fibre extracted from green husks soaked in water for brief periods, natural reddish brown in colour, usually spun in 6 to 14 score.

2.7 Bit Mat — A mat with the pile formed by insertion of bits of yarn on every alternate strand of chain.

2.8 Corridor Mat — A mat in which both warp and weft strands are continuous without tucking in or binding.

2.9 Creel Mat — A mat made up of two or more chains, one tight and the others slack working as pile or binding, the pile being formed by cutting slack chain bent over a grooved rod suitably inserted between slack and tight chain.

2.10 Fibre Mat — A mat made up of two chains, one tight and the other binding, the pile being formed by insertion of tufts of coir fibre on alternate strands of tight chain.

2.11 Gymnasia Mat — A mat with pile formed by cutting three or more yarns folded together and wound around a grooved iron rod along with alternate ends of warp. The pile is made thicker to meet the specific requirements.

2.12 Laccadive Yarn — Wheel or hand spun, medium twisted 2-ply yarn, made out of long or medium stapled retted coir fibre, natural brown to light grey in colour, usually spun in 6 to 8 score.

2.13 Loop Mat — A mat made up by three chains, one tight and other slack working as pile or binding. The pile is formed by loops formed out of slack chain in the weaving process.

2.14 Lot — The coir mats of the same designation and size delivered to one buyer against one despatch note, shall constitute a lot.

2.15 Mesh Mat — A mat made by laying coir yarn in criss-cross manner between a number of nails fixed on a frame and knotting the intersecting points with coir yarn.

2.16 Quilandy Yarn — Wheel or hand spun, medium twisted 2-ply yarn made out of retted coir fibre, natural brown to light grey in colour, usually spun in 8 to 12 score.

2.17 Rod Mat — A mat with pile formed by cutting two or more strands of yarns folded together and wound around a grooved iron rod along with alternate ends of warp.

2.18 Rope Mat (Lover's Knot Mat) — A mat made with a coir rope guided through a number of upright nails fixed on a flat surface. This mat may be made either in oval or oblong shapes.

2.19 Runnage of Yarn — A measure of linear density of coir yarn denoted by the length in metre of coir yarn per kilogram mass.

2.20 Sinnet Mat — A mat made of plaited (or braided) coir yarn of 3 or more strands stitched together in a frame.

2.21 T. Vycome Yarn — Hand spun, soft twisted 2-ply yarn made out of coir fibre obtained by re-cycling bits of coir yarn of various types.

2.22 Vycome Yarn — Wheel or hand spun, soft or medium, twisted 2-ply yarn made out of retted coir fibre, varying in colour from bright natural to darkish grey, usually spun in 11 to 17 score.

2.23 Score of Yarn — A measure of fineness of coir yarn denoted by the one-twentieth of the number of yarns that could be laid close to each other in a span of 0·91 metre.

2.24 Shroud-Laid Rope — Shroud laid (4 strand) coir ropes of diameter 24 to 176 mm with a linear density from 321 to 1 710 ktex (*see* IS : 1410-1983*).

3. DIMENSIONS

3.1 The dimensions of mats shall be as specified in the agreement between the buyer and the seller. Preference would, however, be given to the sizes of mats given below:

Size No.	*Dimensions* mm
0	550 × 330
1	600 × 350
2	700 × 400
3	750 × 450
4	850 × 500
5	900 × 550
6	1 000 × 600
7	1 050 × 650
8	1 150 × 700
9	1 200 × 750

3.2 Tolerances — A tolerance of ± 1 percent or ± 13 mm, whichever is higher, shall be permitted on the nominal value, in both length and width directions of all varieties of mats except corridor mats, mesh mats and rope mats, where a tolerance of $^{+19}_{-13}$ mm shall be permitted in the nominal length of the mat. However, in width direction the tolerance shall remain the same.

3.3 Method of Test — The dimensions of mats shall be determined by the method prescribed in **B-3**.

3.4 Door Mats — Rod and Door Mats — Creel, Bit and Fibre — These may also be supplied in half oval or in any other shape if required by the buyer. However, the dimensions of such mats shall be subject to an agreement between the buyer and the seller.

*Specification for coir ropes (*second revision*).

4. MARKING AND LABELLING

4.1 Each mat shall be legibly and indelibly marked on the back or a label shall be attached with it giving the following particulars or in accordance with the agreement between the buyer and the seller:

a) Designations;

b) Size or dimensions; and

c) Manufacturer's name, initials, trade-mark or any other identification mark.

4.1.1 The product may also be marked with Standard Mark.

4.1.2 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manfucaturers or producers may be obtained from the Bureau of Indian Standards.

5. PACKING

5.1 The mats shall be suitably packed, as agreed to between the buyer and the seller, care being taken to see that the pile of mats is not crushed while packing.

5.2 Each package shall be marked with the following or in accordance with the agreement between the buyer and the seller:

a) Name of the material;

b) Gross mass;

c) Number of mats packed in the package;

d) Size number or dimensions; and

e) Name, initials, trade-mark or any other identification mark of the manufacturer.

6. SAMPLING AND CRITERIA FOR CONFORMITY

6.1 Unless otherwise agreed to between the buyer and the seller, the sampling plan and criteria for conformity as given in Appendix A shall be followed.

7. METHODS OF TESTING AND INSPECTION

7.1 The procedure for testing and inspection of mats shall be as given in Appendix B.

APPENDIX A

(*Clause* 6.1)

SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment mats of the same designation and size shall be grouped together to constitute a lot, unit being an individual piece of mat.

A-1.2 The conformity of a lot to the requirements of this standard shall be determined on the basis of the tests carried out on the mats selected from the lot.

A-1.3 The number of door mats to be selected at random from the lot shall be in accordance with col 2 of Table 1. The door mats shall be selected from at least 10 percent of the packages, and equal number of door mats, as far as possible being drawn at random from each package.

TABLE 1 SAMPLE SIZE AND PERMISSIBLE NUMBER OF DEFECTIVES

Lot Size	Sample Size	Permissible Number of Defective Mats	Sub-sample Size
(1)	(2)	(3)	(4)
Up to 100	15	1	3
101 to 300	25	1	4
301 to 500	35	2	5
501 to 800	50	3	6
801 to 1 300	75	4	7
1 301 to 3 200	110	6	8
3 201 and above	150	8	10

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 For evaluating (a) pile height (wherever applicable), (b) mass per square metre, and (c) dimensions of the mats in the lot, the sample selected as in col 2 of Table 1 shall constitute the test sample.

A-2.2 For evaluating (a) construction, and (b) ends (chains) and picks and (c) number of strands per dm (wherever applicable) of the mats in the lot, the number of mats specified in col 4 of Table 1 shall constitute the test sample. The mats shall be selected at random from those selected as in col 2 of Table 1.

A-2.3 Criteria for Conformity — The lot shall be considered to be in conformity with the requirements of the standard, if the following conditions are satisfied:

a) The number of coir mats found defective in respect of any characteristic mentioned in **A-2.1** does not exceed the limits specified in col 3 of Table 1; and

b) No mat is found defective in respect of any characteristic mentioned in **A-2.2**.

APPENDIX B

(*Clause* 7.1)

METHODS OF TESTING AND INSPECTION

B-1. DETERMINATION OF ENDS AND PICKS PER DECIMETRE

B-1.1 Ends (or Chains) per Decimetre — Lay one test specimen on a horizontal surface with its face downward. Place a scale graduated in centimetres along the width of the test specimen. Count the number of ends (normally comprising of one yarn and one space and including as a fraction any portion of such unit) in a distance of 1 dm. Determine similarly the number of ends in 1 dm at two other different places.

B-1.1.1 Calculate the mean of three values obtained as in **B-1.1** which shall be taken as the number of ends (or chains) per decimetre for the test specimen.

B-1.1.2 Repeat the test with the remaining test specimens and determine the ends (or chains) per decimetre for each of the test specimen in accordance with **B-1.1.1.**

B-1.2 Picks per Decimetre — Lay one test specimen on a horizontal surface with its face downwards. Place a scale graduated in centimetre in a direction perpendicular to the weft. Count the number of picks (normally comprising of one yarn and one space and including as a fraction any portion of such unit) in a distance of 1 dm. Determine similarly the number of picks in 1 dm at two other different places.

B-1.2.1 Calculate the mean of the three values obtained in **B-1.2** which shall be taken as the number of picks per decimetre for the test specimen.

B-1.2.2 Repeat the test with the remaining test specimens and determine the picks per decimetre for each of the test specimen in accordance with **B-1.2.1.**

B-2. DETERMINATION OF PILE HEIGHT

B-2.1 Take one test specimen. Place it on a table or hardboard with its face upwards. Insert a pointed and graduated metal rod through the pile till it just touches the board. Read off the depth of the pile on the rod. Repeat the test at ten different places at least 50 mm away from the edge in the test specimen. Calculate their average. This average value shall be the pile height of the test specimen.

B-2.2 Repeat the test with the remaining test specimens and determine the pile height of each of the test specimen in the test sample.

B-3. DETERMINATION OF DIMENSIONS

B-3.1 Place the test specimen upside down. Measure the length and width from edge to edge (including braid) at four places uniformally distributed along the test specimen. Calculate separately the average of length and width so measured.

B-3.2 Repeat the test with the remaining test specimens and determine the average length and width of each test specimen in the test sample.

B-4. DETERMINATION OF MASS

B-4.1 Weigh each test specimen accurate up to 10 g the dimensions of which have been determined in accordance with **B-3** and calculate its mass in grams per square metre.

B-5. DETERMINATION OF CONSTRUCTION

B-5.1 Cut one test specimen in the direction of its weft. Pull out one pick and note the number of strands in the picks. Pull out the piles one by one in one row and note the number of strands in each pile. Similarly, note the number of strands in the picks and the number of strands in the pile for five successive picks and five rows of piles.

B-5.1.1 The test specimen shall be considered to be in conformity with the requirements if all the observed values are equal to the values specified.

B-5.2 Repeat the test with the remaining test specimens.

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SPECIFICATION FOR COIR MATS

PART 2 CORRIDOR MATS

1. SCOPE

1.1 This standard (Part 2) prescribes the requirements for corridor mats made out of coir fibre.

1.2 The general requirements, designation, constructional details and other requirements are prescribed in this part.

1.3 Terminology, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be firmly and evenly woven.

2.2 The mats may be plain or dyed or in designs as specified by the buyer.

2.3 The mat shall not contain extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation — The designation shall be assigned in such a way as to denote the type of yarn used for the weft by the first letter and the type of the mat by the second letter. For example, if the type of the yarn used for the weft is Anjengo or Vycome the designation of the mat would be AC or VC.

3.2 Construction and Other Requirements — The mats shall conform to the constructional details and other requirements as specified in Table 1.

TABLE 1 CONSTRUCTIONAL DETAILS AND OTHER REQUIREMENTS OF CORRIDOR MATS

(*Clause* 3.2)

DESIGNATION	TYPE OF WARP YARN	ENDS PER dm *Min*	TYPE OF WEFT YARN	RUNNAGE m/kg	MASS g/m²
(1)	(2)	(3)	(4)	(5)	(6)
AC 1	Rope yarn	6	Anjengo	240	4 550
AC 2	do	5	do	240	4 250
AC 3	do	5	do	220	3 650
AC 4	Anjengo Double starndas 12 score	6	do	275	3 650
AC 5	Aratory 3 ply twisted 6·4 mm dia	5	Anjengo 3 ply twisted 6·4 mm dia	—	5 400
RC 1	Rope yarn	6	Aratory	240	4 250
RC 2	do	5	do	240	4 000
RC 3	do	5	do	220	3 350
RC 4	Aratory double strands 12 score	6	do	280	3 350
RC 5	Rope yarn	6	do	280	3 650
LC 1	do	5	Alapat	190	4 250
WC 1	Rope yarn	5	Vycome	260	4 250
WC 2	do	5	do	240	3 650
WC 3	do	5	do	220	3 050
WC 4	do	3	Vycome/Aratory	220/220	5 800
QC 1	Rope yarn	5	Quilandy	110	4 000
QC 2	Wooden reepers fully covered with quilandy yarn	3	Quilandy	120	10 750
YC 1	Beypore	5	Beypore	70	3 200
YC 2	do	5	do	80	4 250
CC 1	Laccadive rope No. 2	5	Laccadive rope No. 2	40	5 450
DC 1	2 ply yarn spun from unretted fibre	5	2 ply yarn spun from unretted fibre	—	4 050
TOLERANCE, PERCENT	—	—	—	—	+ 7·5 — 5·0
METHOD OF TEST [*see* IS : 11420 (Part 1)-1985*]	—	B-1	—	—	B-4

NOTE 1 — 'W' stands for Vycome (weaving).
NOTE 2 — Runnage of weft yarn is given for guidance only.
*Specification for coir mats: Part 1 General requirements.

Indian Standard

SPECIFICATION FOR COIR MATS

PART 3 DOOR MATS — CREEL, BIT AND FIBRE

1. SCOPE

1.1 This standard (Part 3) prescribes the requirements for creel, bit and fibre varieties of door mats and covers plain, dyed, stencilled and fancy inlaid mats.

1.2 The general requirements, designation, constructional details and the specific requirements are prescribed in this part.

1.3 Terminology, dimensions, marking and labelling, packing, sampling, and criteria for conformity and methods of tests are specified in Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be firmly and evenly woven, pile tufts shall be secure and the shearing of the pile shall be uniform and level. Mats may also be supplied without shearing of the pile, if so required by the buyer.

2.2 The mats may be plain, dyed or they may be stencilled or may have designs and/or lettering woven into them. The designs may be bevelled where required to give clarity of outline.

2.3 The mats shall be squared by removing one or more weft threads and the protruding warp threads shall be treated as follows:

a) In creel mats, threads shall be doubled-back and interlaced in the mat but in the case of creel mats sealed with rubber latex or other edge sealing compound at ends or braided ends, the threads need not be doubled back and interlaced in the mat.

b) In bit mats, threads shall be tied with jute twine and merged with the body of the mat.

c) In fibre mats, threads shall be doubled back and interlaced with the body of the mat.

2.4 Bit mat of thickness less than 45 mm shall be bound with a braid manufactured from five or more strands of hard-twisted coir yarn around the edges and with braid of seven strands for those having thickness 45 mm and above. The ends of the braid shall be securely fastened. There shall be at least 3 stitches/dm of the braid.

2.5 The mats shall be reasonably free from extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation — The designation of creel or bit mats shall be assigned in such a way as to denote the type of the yarn used for the pile by the first letter and the variety of mat by the second letter. As, for example, if the type of the yarn used for the pile is Beach or Vycome the designation of the mat would be BC or VC for creel mat and BB or VB for bit mat.

However in the designation of fibre mat, the variety of mat is denoted by the first letter and the type of yarn used for the pile by the second letter.

3.2 Construction — The mats shall conform to constructional details specified in Table 1.

3.3 Ends and Picks — The number of ends and picks per decimetre of mats shall be in accordance with the requirements of Tables 1, 2 and 3. The following tolerances are permitted:

Ends per dm		+ 1 − 0
Picks per dm	For mats of width less than 76 cm	+ 0 − 5 percent
	For mats of width 76 cm and above	+ 0 − 10 percent

3.4 Pile Height — The pile height of mats shall be in accordance with the requirements of Tables 1, 2 and 3.

3.5 Mass — The mass in g/m^2 of mats shall be as given in Table 1, 2 and 3.

3.5.1 An increase of 1 200 g/m^2 shall be allowed for every increase of 6 mm pile height over the specified values for mats having mass 6 000 g/m^2 and above.

3.5.2 An increase of 600 g/m^2 will be allowed for every increase of 3 mm pile height over the specified values for mats having mass below 6 000 g/m^2. When the mass reaches 6 000 g/m^2 the lift in pile height and the corresponding mass in g/m^2 as given in **3.5.1** shall be made applicables.

3.5.3 For mats of width 300 mm and below, the plus tolerance shall be 12·5 percent and minus tolerance shall be 5 percent of the specified nominal value.

TABLE 1 REQUIREMENTS OF DOOR MAT — CREEL

(*Clauses* 3.2, 3.3, 3.4 *and* 3.5)

Designation	Type of Yarn				Construction	Ends per dm	Picks per dm	Pile Height	Mass
	Slack Chain	Tight Chain	Weft	Pile					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
								mm	g/m²
BC1	—	Beach/Vycome/ Alapat	Beach	Beach	Warp cut pile	9	24	22	4 800
BC2	—	do	do	do	do	9	24	25	5 400
BC3	—	do	do	do	do	9	25	28	6 000
BC4	2 or 3 ply jute	do	do	do	do	9	24	25	6 000
VC1	—	Vycome/ Alapat	Vycome	Vycome	do	9	25	22	5 400
VC2	—	do	do	do	do	9	25	25	6 000
VC4	2 or 3 ply jute	do	do	do	do	9	25	22	5 400
VC5	do	do	do	do	do	9	25	25	6 000
VC6	do	4 or 5 ply jute	4 or 5 ply jute	do	do	14	40	19	5 100
VC8	do	do	3 ply jute	do	do	17	52	13	4 350
VC10	2 ply jute	Vycome	Vycome	do	do	14	40	19	4 500
VC11	3 ply jute	do	do	Vycome & other fibre	do	17	24	25	6 300
VC12	do	do	do	Vycome (centre) wool (border)	do	9	28	19	5 100
VC13*	Anjengo A	do	do	Anjengo A	do	10	24	15	3 965
Tolerance						*see* 3.3		± 1·5 mm	*see* 3.5
Method of Test [*see* IS : 11420 (Part 1)-1985†]						B-1	B-1	B-2	B-4

*Unsheared and large size mats having a minimum width of 100 cm.

†Specification for coir mats: Part 1 General requirements.

TABLE 2 REQUIREMENTS OF DOOR MAT — BITS

(*Clauses* 3.2, 3.3, 3.4 *and* 3.5)

Designation	Warp	Weft	Pile	Construction	Ends per dm	Picks per dm	Pile Height	Mass
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) mm	(9) g/m²
BB1	Beach/ Vycome	Beach	Beach bits	Inserted yarn bit	9	9	32	6 600
VB1	Vycome	Vycome	Vycome bits	do	9	9	35	7 800
AB1	Vycome	Vycome	Hard twisted yarn bits	do	9	9	35	8 400
Tolerance					*see* 3.3	± 3 mm		*see* 3.5
Method of Test [*see* IS : 11420 (Part 1)-1985*]	—	—	—		B-1	B-1	B-2	B-4

*Specification for coir mats: Part 1 General requirements.

TABLE 3 REQUIREMENTS OF DOOR MATS — FIBRE

(*Clauses* 3.2, 3.3, 3.4 *and* 3.5)

DESIGNATION	SLACK CHAIN	TIGHT CHAIN	WEFT	PILE	CONSTRUCTION	ENDS/ dm	PICKS PER dm	PILE HEIGHT	MASS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
								mm	g/m²
EM2†	Vycome/Alapat/ Anjengo	Vycome/ Alapat/ Anjengo	Vycome	Retted fibre Cr. 1 or 2*	Inserted fibre	12	12	28	7 800
EM3†	do	do	do	do	do	14	14	32	8 400
FW1	Vycome	do	do	Wool border & retted fibre* at centre	do	14	15	19 (border) 28 (inside)	6 600
FW2	do	Alapat/ Vycome	do	Retted fibre* & wool	do	12	12	35	10 200
TOLERANCE						*see* 3.3		± 3 mm	*see* 3.5
METHOD OF TEST [*see* IS : 11420 (Part 1)-1985‡]						B-1	B-1	B-2	B-4

*IS : 898-1985 Specification for retted coir fibre (*first revision*).
†'M' stands for 'Retted coir fibre for mats'.
‡Specification for coir mats: Part 1 General requirements.

3.5.4 For mats of width above 300 mm and below 760 mm the plus tolerance shall be 7·5 percent and minus tolerance shall be 5 percent of the specified nominal value.

3.5.5 For mats of width 760 mm and above, the plus tolerance shall be 5 percent and minus tolerance shall be 10 percent of the specified nominal value.

3.5.6 The following minus tolerance on the nominal value shall be allowed for mass of bevelled mats.

a) Creel mats — 1 percent
b) Bit „ — 1·5 „
c) Fibre „ — 2 „

Indian Standard

SPECIFICATION FOR COIR MATS

PART 4 DOOR MATS — ROD

1. SCOPE

1.1 This standard (Part 4) prescribes the requirements for door rod, commonly known as rod mats, made out of Beach and Vycome coir yarn mainly. It covers plain, dyed, stencilled and inlaid rod mats.

1.2 Terminology, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be firmly and evenly woven. Pile tufts shall be well secured and the shearing of the pile shall be uniform and level. Mats may also be supplied without shearing of the pile, if so required by the buyer.

2.2 The mats may be plain, dyed, stencilled or inlaid with coir fibre or coir yarn to form a design. When inlaid with coir fibre or coir yarn the designs may be bevelled to give clarity of outline. In-laid mats may also be supplied without bevelling if so required by the buyer. The mats shall be squared by removing one or more weft threads. The protruding warp threads shall be tied with jute twine and merged with the body of the mat.

2.3 Each mat shall be bound with braid made of five or more strands of hard twisted coir yarn around the edges in the case of mats having a pile thickness of less than 45 mm and above seven strands of hard twisted yarn for mats having pile thickness 45 mm and above. The ends of the braid shall be securely fastened. There shall be at least three stitches per decimetre in the braid.

2.4 The mats shall not be loaded with any extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation — The designation of mats shall be assigned in such a way so as to denote the type of yarn used for the pile by the first letter and the variety of the mat by the second letter. As, for example, if the type of the yarn used for the pile is beach or Vycome, the designation would be BR or VR.

3.2 Construction — The construction of mats shall be in accordance with requirements of Table 1.

3.3 Ends (Chains) and Picks

3.3.1 The number of ends per decimetre and picks per decimetre of mats shall be in accordance with the requirements of Table 1. The following tolerances shall be permitted:

a) Ends (chains) per dm $^{+1}_{-0}$

b) Picks per dm

i) For mats of width less than 76 cm $^{+0}_{-5}$ percent.

ii) For mats of width 76 cm and above $^{+0}_{-10}$ percent.

3.4 Pile Height

3.4.1 The pile height of mats shall be as given in Table 1.

3.5 Mass

3.5.1 The mass per square metre of mats shall be as given in Table 1 subject to the following tolerances:

a) An increase of 1 200 g/m^2 shall be allowed for every increase of 6 mm pile height over the specified values for mats having mass 6 000 g/m^2 and above.

b) An increase of 600 g/m^2 shall be allowed for every increase of 3 mm pile height over the specified values for mats having mass below 6 000 g/m^2. When the mass reaches 6 000 g/m^2, the lift in pile height and the corresponding mass in g/m^2 as given in **4.5** (a) shall be made applicable.

c) For mats of width 300 mm and below the plus tolerance shall be 12·5 percent and minus tolerance shall be 5 percent of the specified nominal value.

d) For mats of width above 300 mm and below 760 mm the plus tolerance shall be 7·5 percent and minus tolerance shall be 5 percent of the specified nominal value.

e) For mats of width 760 mm and above, the plus tolerance shall be 5 percent and minus tolerance shall be 10 percent of the specified nominal value.

f) A special minus tolerance of 1·5 percent of the nominal value shall be allowed in mass for bevelled mats.

g) In respect of qualities where the formula for increase in mass for increased pile height is applied, the maximum and minimum limits of tolerance would stand raised by the applicable standard lift from the stipulated levels of the basic quality.

3.6 Dimensions

3.6.1 The dimensions of the mats and the tolerances shall be as given in **3.1**, **3.2** and **3.3** of Part 1 of this specification.

3.6.2 Over and above the dimensions as given in **4.6.1**, the following dimensions shall be permitted for another Size No. 10 mainly for mainly defence use:

Size No.	*Dimensions* mm
10	910 × 550

TABLE 1 REQUIREMENTS OF DOOR MATS — ROD

(*Clauses* 3.1 *to* 3.5)

Designation	Type of Warp Yarn	Type of Weft Yarn	Type of Pile Yarn	Construction	Ends (Chain) per dm	Picks per dm	Pile Height	Mass
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
							mm	g/m²
PLAIN, DYED OR STENCILLED								
BR1	Beach or Vycome	Beach	Beach	2 × 2*	9	9	25	4200
BR2	do	do	do	2 × 2	9	11	28	4 800
BR3	do	do	do	2 × 1	10	11	25	4 800
BR4	do	do	do	2 × 1	10	13	28	5 400
BR5	do	do	do	3 × 2	10	9	28	5 400
BR6	do	do	do	3 × 2	10	9	32	6 000
BR7	do	do	do	3 × 1	10	11	28	5 400
BR8	do	do	do	3 × 1	10	12	32	6 000
BR13	do	do	do	4 × 1	10	11	38	7 200
BR14	Beach	do	2 strands Beach 2 strands Vycome	4 × 1	10	10	35	6 600
BR15	Beach or Vycome	do	Beach	3 × 3	10	8	32	5 100
VR1	Vycome	Vycome	Vycome	3 × 1	10	12	32	7 200
VR1D†	do	do	do	4 × 1	10	12	40	8 400
VR2	do	do	do	4 × 2	10	9	32	7 200
VR3	Beach or Vycome	Vycome	Vycome	4 × 1	10	10	32	7 200
VR7	do	do	do	6 × 1	12	13	35	7 800
VR8†	Tight-Vycome Slack-Vycome	do	do	—	12	20	—	5 490

TR1	Vycome	T. Vycome/ Vycome	T. Vycome	3 × 1	10	9	32	7 200
TR2	Vycome/ Beach	T. Vycome/ Vycome	do	3 × 2	10	8	32	6 600
RR1	Vycome/Alapat	Vycome	Aratory	4 × 1	10	12	32	7 200
LR1	Vycome	Vycome	Alapat	4 × 1	10	10	32	7 200
FIBRE INLAID								
BR1	Beach/Vycome	Beach	Beach	2 × 2	10	10	28	5 400
BR3	do	do	do	3 × 1	11	11	28	6 000
BR6	do	do	do	3 × 2	11	11	28	6 000
BR7	do	do	Beach/Alapat/ T. Vycome	3 × 1	10	11	35	7 200
VR1	Vycome	Vycome	Vycome	4 × 1	11	12	32	7 800
TR1	do	do	T. Vycome	3 × 1	10	10	35	7 800
RR1	do	do	Aratory	4 × 1	10	12	38	8 400
LR1	Vycome/Alapat	do	Alapat	4 × 1	10	11	38	8 400
YARN INLAID								
BRY1	Beach/Vycome	Beach	Beach	3 × 1	11	12	32	6 000
TOLERANCE	—	—	—	—	*see* 3.3		± 3 mm	*see* 3.5
METHOD OF TEST [*see* IS :.11420 (Part 1)-1985‡]		—	—	B-5	B-1	B-1	B-2	B-4

*The construction 2 × 2 for example, implies that the pile is formed by two strands of coir yarn working as one and the weft comprising of two strands of coir yarn is inserted between two rows of pile.

†For defence use mainly.

‡Specification for coir mats: Part 1 General Requirement.

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Indian Standard

SPECIFICATION FOR COIR MATS

PART 5 GYMNASIA MATS

1. SCOPE

1.1 This standard (Part 5) prescribes the requirements for Gymnasia mats made from coir yarn.

1.2 Terminology, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be manufactured from coir yarn as specified in Table 1.

2.2 The mats shall be firmly and evenly woven. Pile tufts shall be secured and the shearing of the pile shall be uniform and level. Mats may also be supplied without shearing of the pile, if so required by the buyer.

2.3 The mats shall be squared by removing one or more weft threads. The protruding warp threads shall be tied with jute twine and merged with the body of the mat.

2.4 Each mat shall be bound with a braid of eleven strands of hard twisted coir yarn and having a width of 30 mm around the edges. The cords of the braid shall be securely fastened and there shall be at least three stitches per decimetre in the braid. The cordage used shall be coir rope made out of hard twisted yarn and having a circumference of 38 mm.

2.5 The mats shall not contain any extraneous matter.

2.6 For defence requirement each mat shall be securely fitted with four cordage handles. The cordage handle shall be woven inside the mat up to a distance of 23 cm, 8 cm which shall be turned backward.

3. SPECIFIC REQUIREMENTS

3.1 Designation

3.1.1 The designation of a mat shall be assigned in such a way as to denote the type of the yarn used for the pile by the first letter and the variety of the mat by the second letter. As, for example, if the yarn used for the pile is beach or Vycome the designation would BG or VG.

3.2 Construction— The construction of mats shall be in accordance with the reqirements of Table 1.

3.3 Dimensions

3.3.1 The dimensions of mats shall be as specified in an agreement between the buyer and the seller.

3.3.2 For defence reqirements the dimension of the gymnasia mat shall be 183 cm × 183 cm.

3.3.3 A tolerance ± 13 mm or ± 1 percent whichever is higher shall be permitted on both length and width of the mat.

3.3.4 The dimensions of the mats in a lot shall be determined by the method prescribed in **B-3** of Part 1 of this specification.

3.4 Ends (Chains) and Picks — The minimum number of ends (chains) per decimetre and picks per decimetre of mats shall be in accordance with the requirements of Table 1.

3.5 Pile Height — The pile height of mats shall be as given in Table 1.

3.6 Mass

3.6.1 The mass per square metre of mats shall be as given in Table 1 subject to the following tolerance:

a) An increase of 900 g/m^2 will be allowed for every increase of 6 mm pile height over the specified nominal value.

b) For mats of width below 760 mm the plus tolerance shall be 7·5 percent and minus tolerance shall be 5 percent of the specified nominal value.

c) For mats of width 760 mm and above the plus tolerances shall be 5 percent and minus tolerance shall be 10 percent of the specified nominal value.

3.6.2 For defence requirement the total mass of the mat of size 183 cm × 183 cm including four cordage handle shall be 38 kg.

3.6.2.1 A tolerance of $^{+4}_{-2}$ kg shall be allowed on the total mass of the mat.

TAELE 1 REQUIREMENTS OF GYMNASIA MAT

(*Clauses* 3.1, 3.2, 3.3 *and* 3.4)

Designation	Type of Warp Yarn	Type of Weft Yarn	Ends (Chains) per dm	Picks per dm	Type of Pile Yarn	Pile Height	Mass
(1)	(2)	(3)	(4)	(5)	(6)	(7) mm	(8) g/m²
VG1	Vycome	Vycome yarn single, sufficient to guarantee tight weave	10	10	Vycome yarn free from impurities *Min.* 4 fold yarn drawn together	63	12 200
BG1	do	Beach yarn single, sufficient to guarantee tight weave	10	10	Beach yarn *Min.* 3 fold yarn drawn together	63	1 1000
Tolerance			+ 1 − 0	± 1		± 3 mm	*see* **3.6.1**
Method of Test [*see* IS : 11420 (Part 1)-1985*]		B-5	B-1	B-1	B-5	B-2	B-4

*Specification for coir mats: Part 1 General requirements.

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Indian Standard

SPECIFICATION FOR COIR MATS

PART 6 LOOP MATS

1. SCOPE

1.1 This standard (Part 6) prescribes requirements for loop mats made out of coir yarn.

1.2 Terminology, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be firmly and evenly woven.

2.2 The mats may be supplied plain, bleached, dyed, stencilled or with designs as may be specified by the buyer.

2.3 The chain threads in each mat shall be doubled back and interlaced in the mats. This finishing technique may be dispensed within case of mats sealed at the ends with rubber latex of other edge sealing compound.

2.4 The mats shall be reasonably free from salt and other extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation

3.1.1 The designation shall be assigned in such a way so as to denote the type of the yarn used for the pile by the first letter and the variety of the mat by the second letter. As, for example, if the type of the yarn used for the pile is Anjengo or Vycome, the designation would the AL or VL.

3.2 Construction — The mats shall conform to the constructional details specified in Table 1.

3.3 Ends (Chains) and Picks — The minimum number of ends (chains) and picks per decimetre of mat shall be in accordance with the requirements specified in Table 1.

3.4 Mass — The mass in g/m^2, of mats shall meet the requirements as given in Table 1 subject to the following tolerances:

a) For mats of width 300 mm and below, the tolerances shall be $^{+12.5}_{-5}$ percent of the specified nominal value.

b) For mats of width above 300 mm and below 760 mm the tolerances shall be $^{+7.5}_{-5}$ percent of the specified nominal value.

c) For mats of width 760 mm and above the tolerances shall be $^{+5}_{-10}$ percent of the specified nominal value.

TABLE 1 REQUIREMENTS OF LOOP MATS

(*Clauses* 3.2, 3.3 *and* 3.4)

Designation	Type of Yarn for Tight Chain	Runnage*	Type of Yarn for Binding Chain	Runnage*	Type of Yarn for Loop Chain	Runnage*	Type of Yarn for Weft	Ends per dm, *Min*	Picks per dm, *Min*	Mass
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		m/kg		m/kg		m/kg				m/kg^2
RL1	Vycome	220	Vycome	240	Aratory	220	Vycome	10	22	4 250
RL2	Vycyme	220	Vycome	240	Aratory	240	Vycome	10	22	3 650
VL1	Vycome	220	Vycome	240	Vycome	260	Vycome	10	28	3 650
AL1	Vycome	220	—	—	Anjengo	220	Vycome	10	24	4 880
AL2	Vycome	220	Anjengo	275	Anjengo	275	Vycome	10	20	3 050
AL3	Vycome	220	Anjengo	240	Anjengo	240	Quilandy	10	20	5 490
Tolerance										
Method of Test [*see* IS : 11420 (Part 1)-1985†]								B-1	B-1	B-4

*Runnage is given for guidance only.

†Specification for coir mats: Part 1 General requirements.

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Indian Standard

SPECIFICATION FOR COIR MATS

PART 7 MESH MATS

1. SCOPE

1.1 This standard (Part 7) prescribes the requirements for mesh mats made out of coir yarn.

1.2 Terminology, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be made firmly and evenly, the knots in the intersection of points shall be secure, tight and uniform.

2.2 The mats may be plain or in designs as specified by the buyer. The mats shall not contain any extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation — The designation of a mat shall be assigned in such a way as to denote the variety of the mat by the first letter, the type of yarn used for the base of the mat by the second letter and the type of yarn used for binding by the third letter. As, for example, if the type of yarn used for the base is 'Baypore' and the binding yarn is 'Anjengo', designation of the mat would be MBA.

3.2 Construction — The mats shall conform to the constructional details specified in Table 1.

3.3 Mass — The mass per square metre of mesh mats shall be in accordance with Table 1.

TABLE 1 REQUIREMENTS OF MESH MATS

(*Clauses* 3.2 *and* 3.3)

Designation	Type of Yarn Used in the Base	No. of Strands per dm Minimum	Binding Yarn	Mass
(1)	(2)	(3)	(4)	(5) g/m²
MBA	Baypore	10 × 10	Anjengo/Aratory	3 660
MRA	Aratory	20 × 20	Anjengo	3 660
MVV	Vycome	20 × 20	Vycome	3 050
MQA	Quilandy	20 × 20	Anjengo	5 490
Tolerance, Percent		—	—	+ 7·5 − 5
Methods of Test [*see* IS : 11420 (Part 1)-1985*]	—	—	—	B-4

Note — The number of strands used at the edges of MBA may be suitably increased and all the four edges may be knotted properly. All the four edges of MRA, MVV may be finished either by stitching with 7 ply braid on both sides or by plaiting with coir yarn to give the appearance of a braid and the edges of MQA may be finished by plaiting with coir yarn to give the appearance of a braid.

*Specification for coir mats: Part 1 General requirements.

Indian Standard

SPECIFICATION FOR COIR MATS

PART 8 ROPE MATS (LOVER'S KNOT MATS)

1. SCOPE

1.1 This standard (Part 8) prescribes the requirements for rope mats (Lover's knot mats) made out of coir yarn.

1.2 Terminology dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in the Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The ropes shall be uniformly twisted and spun and the mat shall be made firmly and evenly.

2.2 All the side slabs in the mats shall be stitched properly so as to prevent slippage of layers of rope.

2.3 In the mats, the starting and finishing ends of rope shall be merged into the adjacent layers of rope suitably so that the ends cannot be identified.

2.4 The mats may be plain or dyed or in designs as specified by the buyer.

2.5 The mats shall not contain any extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation — The designation of the mat shall be assigned in such a way as to denote the variety of the mat by the first two letters and the type of the yarn used for manufacturing rope by the third letter. As for example if the type of the yarn used is Anjengo or Aratory the designation of the mat would be LKA or LKR.

3.2 Construction — The mats shall conform to the constructional details specified in Table 1.

3.3 Mass — The mass per square metre of rope mat shall be in accordance with Table 1.

3.4 Diameter of Rope — The diameter of rope shall be as specified in Table 1.

TABLE 1 REQUIREMENTS OF ROPE MATS

(*Clauses* 3.2, 3.3 *and* 3.4)

DESIGNATION	TYPE OF ROPE	TYPE OF YARN	DIAMETER OF ROPE	MASS
(1)	(2)	(3)	(4)	(5)
			mm	g/m²*
LKA	Shroud laid	Anjengo	14	6 100
LKR	do	Aratory	14	5 490
LKV	do	Vycome	25	11 450
TOLERANCE	—	—	± 3 mm	+ 7·5 percent − 5 percent
METHOD OF TEST [*see* IS : 11420 (Part 1)-1985†]	—	—	—	B-4

*For oval shaped mats the nominal mass in g/m² shall be 10 percent less than specified.

†Specification for coir mats: Part 1 General requirements.

Indian Standard

SPECIFICATION FOR COIR MATS

PART 9 SINNET MATS

1. SCOPE

1.1 This standard (Part 9) prescribes the requirements for sinnet mats made out of coir yarn.

1.2 Terminology, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are specified in the Part 1 of the standard.

2. GENERAL REQUIREMENTS

2.1 The mats shall be firmly and evenly manufactured.

2.2 The mats may be supplied plain, dyed or in designs as specified by the buyer.

2.3 The mats shall be free from extraneous matter.

3. SPECIFIC REQUIREMENTS

3.1 Designation — The designation of mat shall be assigned in such a way as to denote the type of yarn used for the plait by the second letter and the variety of the mat by the first letter for example, if the type of the yarn used for the plait is Anjengo or Aratory, the designation of mat would be SA or SR.

3.2 Construction — The mats shall conform to the constructional details specified in Table 1.

3.3 Thickness — The mats shall conform to the requirements for thickness as prescribed in Table 1.

3.4 Mass — The mass per square metre of Sinnet mats shall be in accordance with the requirements laid down in Table 1, subject to the following tolerances on the nominal mass as specified:

a) For mats of width 300 mm and below — + 12·5 percent
— 5 percent

b) For the mats of width above 300 mm but below 760 mm — + 7·5 percent
— 5 percent

c) For mats of width 760 mm and above — + 5 percent
— 10 percent

TABLE 1 REQUIREMENTS OF SINNET MATS

(*Clauses* 3.2, 3.3 *and* 3.4)

DESIGNATION	TYPE OF YARN	RUNNAGE*	NO. OF STRANDS OF PLY	THICKNESS MINIMUM	MASS
(1)	(2)	(3)	(4)	(5)	(6)
		m/kg	mm	mm	g/m²
SA1	Anjengo	220	9	19	3 650
SA2	do	220	9	19	4 250
SA3	do	220	11	25	4 850
SA4	do	220	11	25	5 450
SA5	do	220	11	25	6 100
SA6	do	220	11	28	7 300
SA7	do	275	9	19	5 490
SA8	do	275	5	10	3 000
SB1	Beach	250	9	19	3 350
SB2	do	250	9	19	3 950
SB3	do	250	11	25	4 600
SR1	Aratory	220	9	19	3 350
SR2	do	220	9	19	3 950
SR3	do	220	11	25	4 800
SR4	do	220	11	25	5 200
SR5	do	220	11	25	5 800
SR6	Anjengo/ Aratory	220/220	19	28	7 300
SL1	Alapat	180	11	25	7 900
SL2	do	190	12	31	6 700
SD1	Ashtamudy	110	9	25	6 100
SV1	Vycome	220	9	19	3 650
SV2	do	220	9	19	4 250
SV3	do	220	11	25	4 850
SV4	do	220	11	25	5 450
SV5	do	240	19	28	6 700

TOLERANCE — *see* **3.4.1**

METHOD OF TEST — B-4

[*see* IS : 11240 (Part 1)-1985†]

NOTE — Coir yarn for inner strands of the braid may be of a suitable quality.

*Runnage is given for guidance only.

†Specification for coir mats: Part 1 General requirements.

BUREAU OF INDIAN STANDARDS

Headquarters:
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephones: 323 0131, 323 3375, 323 9402
Fax : 91 11 3234062, 91 11 3239399, 91 11 3239382

Telegrams : Manaksanstha
(Common to all Offices)

	Telephone
Central Laboratory:	
Plot No. 20/9, Site IV, Sahibabad Industrial Area, SAHIBABAD 201010	8-77 00 32
Regional Offices:	
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	323 76 17
*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054	337 86 62
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 38 43
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113	235 23 15
†Western : Manakalaya, E9 Behind Marol Telephone Exchange, Andheri (East), MUMBAI 400093	832 92 95
Branch Offices:	
'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001	550 13 48
‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 560058	839 49 55
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Savitri Complex, 116 G. T. Road, GHAZIABAD 201001	8-71 19 96
53/5 Ward No. 29, R. G. Barua Road, 5th By-lane, GUWAHATI 781003	54 11 37
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NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010	52 51 71
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	32 36 35

*Sales Office is at 5 Chowringhee Approach, P. O. Princep Street, CALCUTTA 700072 — 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 — 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square, BANGALORE 560002 — 222 39 71

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