

SPECIFICATION FOR BORDERED MATTRESSES

(EXCLUDING CELLULAR RUBBER MATTRESSES)

FOR HOSPITALS, INSTITUTIONS AND
GOVERNMENT DEPARTMENTS

B.S. 1818 : 1961



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THIS BRITISH STANDARD, having been approved by the Bedding Industry Standards Committee, was published under the authority of the General Council on 28th February, 1961.

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

This standard makes reference to the following British Standards:

- B.S. 947. Yarn count systems and conversions.
- B.S. 1425. Cleanliness of fillings and stuffings for bedding, upholstery, toys and other domestic articles.
- B.S. 1781. Linen textiles for use by hospitals and local authorities.
- B.S. 2005. Glossary of terms applicable to fillings and stuffings for bedding, upholstery, toys, and other domestic articles.
- B.S. 2570. Twines made from jute, flax and hemp.
- B.S. 2726. Marking ink for stock purposes.
- B.S. 2732. Cotton tickings for use by hospitals and local authorities.
- B.S. 2894 : Quality of fillings for bedding, upholstery, etc.
Part 2. Curled hair and curled hair/fibre mixtures,
loose or layered.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following B.S.I. references relate to the work on this standard :
Committee references BDM/3, BDM/3/1.
Draft for comment A(BDM) 1650

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CO-OPERATING ORGANIZATIONS

The Bedding Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and industrial organizations:

- *Furnishing Spring Makers' Federation
- Institute of Iron and Steel Wire Manufacturers
- *Ministry of Health
- *Ministry of Works
- National Association of Retail Furnishers
- *National Federation of Bedding and Allied Trades
- *National Union of Furniture Trades Operatives
- Ticking Group
- *War Office
- Women's Advisory Committee of the B.S.I.
- Representatives of filling materials manufacturers.

The Government departments and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committees entrusted with the preparation of this British Standard.

Admiralty
 Air Ministry
 Association of Hospital Management Committees
 Association of Hospital Matrons
 Crown Agents for Oversea Governments and Administrations
 Institute of Hospital Administrators
 J.E.S.C. Bedding Sub-committee
 Medical Superintendents' Society
 Royal College of Nursing
 South West Metropolitan Region—Supplies Officers Group

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BRITISH STANDARD SPECIFICATION FOR BORDERED MATTRESSES

(excluding cellular rubber mattresses)

FOR HOSPITALS, INSTITUTIONS AND GOVERNMENT
DEPARTMENTS

FOREWORD

The first edition of this British Standard, originally covering only hospital type mattresses, was based on proposals made by the National Federation of Bedding and Allied Trades and was published in 1951. Dimensions were specified to ensure that the mattresses would fit standard hospital bedsteads as specified in B.S. 1682, 'Hospital bedsteads for general purposes,' and children's standard cots as specified in B.S. 1694, 'Children's cots (hospital type).' Provision was also made for special widths and lengths.

The standard has now been completely revised, with particular reference to certain published or draft Defence Specifications for the use of Government departments, and the specifications have been extended to cover these requirements. In Parts 3, 4 and 5, pattern numbers are given for the use of Government departments.

Attention is drawn to the fact that where reference is made to other British Standards or to other specifications for certain materials, only the latest issue of those specifications should be used.

The standard requires that only filling materials which comply with the appropriate British Standard for cleanliness shall be used.

Mattresses complying with Part 1 of this standard are intended for use in conjunction with standard hospital bedsteads of any of the following types:

B.S. 1682: Hospital bedsteads for general purposes.

B.S. 1976: Hospital ward cots for adults.

B.S. 1979: Hospital ward bedsteads for mental hospitals.

Mattresses complying with Part 2 of this standard are intended for use in conjunction with children's standard cots as specified in B.S. 1694, 'Hospital ward cots for children.' Mattresses complying with Parts 3, 4 and 5 of this standard are intended to meet the needs of Government departments.

Other types of mattresses for hospital use are covered by separate British Standards as follows:

B.S. 1819. Spring interior mattresses (hospital type).

Part 1. Mattresses for adult beds and cots.

B.S. 1819. Spring interior mattresses (hospital type).

Part 2. Mattresses for children's cots.

B.S. 3093. Latex foam rubber hospital mattresses.

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On account of doubts expressed by some purchasers about means of ensuring that mattresses comply with this British Standard the question of marking was specially considered by the responsible Committee, and it was decided that the B.S.I. certification mark should be made a requirement of quality control in the British Standards for institutional bedding.

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SPECIFICATION

SCOPE

1. This British Standard specifies requirements for bordered mattresses for adults and children, suitable for use in hospitals and other institutions. The specification is divided into five parts, as follows:

- Part 1. Mattresses for adults (for hospital and institutional use).
- Part 2. Mattresses for children's cots (for hospital and institutional use).
- Part 3. Coir mattresses (single bed size) for the needs of Government departments.
- Part 4. Hair mattresses for the needs of Government departments.
- Part 5. Infants' crib mattresses for the needs of Government departments.

GENERAL

2. The specified quantities, weights and strengths of materials are minimum requirements, except the lengths and widths of mattresses, for which maximum and minimum dimensions are specified, and depth of borders.

DEFINITIONS

3. For the purposes of this British Standard the definitions given in B.S. 2005*, apply.

PART 1. MATTRESSES FOR ADULTS FOR HOSPITAL AND INSTITUTIONAL USE

DIMENSIONS AND TOLERANCES

4. *a. Width and length.* Widths and lengths of finished mattresses shall be subject to a tolerance of $+0 - \frac{1}{2}$ in ($+0 - 13$ mm). Unless otherwise specified by the purchaser, the width and length of each finished mattress shall be in accordance with Tables 1 and 2 below. Before the length and width of a finished mattress are measured, the mattress shall first be placed on a flat surface, pulled out and stretched, and then allowed to regain its normal shape and dimensions.

A mattress made to a size other than one of those specified below shall be clearly marked with the words 'special size' and with the length and width, and shall not vary from the stated size by more than $+0 - \frac{1}{2}$ in ($+0 - 13$ mm).

* B.S. 2005, 'Glossary of terms applicable to fillings and stuffings for beddings, upholstery, toys and other domestic articles'.

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TABLE 1. WIDTHS OF MATTRESSES

Nominal width of bedstead			Width of finished mattress		
ft	in	cm	ft	in	cm
2	6	76	2	6	76
3	0	91	3	0	91

TABLE 2. LENGTHS OF MATTRESSES

Overall length of bedstead			Length of finished mattress		
ft	in	cm	ft	in	cm
6	6	198	6	3	190
6	9	206	6	6	198
7	0	213	6	9	206

b. Borders. Depths of mattress borders after sewing shall be 4 in (10 cm).

FILLING MATERIALS

5. Each mattress shall be filled with one only of the following materials *a* or *b*, as specified by the purchaser. No second-hand or reconditioned materials shall be used in the manufacture of these filling materials.

a. New curled hair, Grade 1, complying with B.S. 3474: Part 3, containing not less than 15 per cent by weight of long hair composed of unused horseshair and/or cow tail hair or a mixture of those hairs, the remainder being unused hog hair, or*

b. New curled fibre, complying with Part 10 of B.S. 1425†, and comprising one of the following fibres, or mixture thereof, either dyed or undyed:

- (i) Curled coir fibre combings or bristle, but not ordinary mattress fibre.
- (ii) Curled Cochin fibre.
- (iii) Curled Mexican fibre.

Curling of these fibres shall be followed by boiling for not less than one hour, or steaming in a vacuum chamber with steam at a pressure of 10–20 lb/sq in

* B.S. 2894, 'Quality of fillings for bedding, upholstery, etc.'. Part 2, 'Curled hair and curled hair/fibre mixtures, loose or layered'.

† B.S. 1425, 'Cleanliness of fillings and stuffings for bedding, upholstery, toys and other domestic articles'.

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(0.7–1.4 kg/cm²) for not less than 30 minutes, the vacuum chamber having first been evacuated to a pressure of approximately 10 inHg absolute (vacuum gauge reading not less than 20 in (51 cm) of mercury), and drying.

QUANTITIES OF FILLING MATERIALS

6. The net weight of filling material in each mattress shall be not less than that shown in the appropriate column of Table 3. The quantity of filling material for 'special size' mattresses shall be calculated *pro rata*.

TABLE 3. NET WEIGHT OF FILLING MATERIAL

Mattress width		Mattress length					
		6 ft 3 in (190 cm)		6 ft 6 in (198 cm)		6 ft 9 in (206 cm)	
		Hair	Fibre	Hair	Fibre	Hair	Fibre
ft in	cm	lb kg	lb kg	lb kg	lb kg	lb kg	lb kg
2 6	76	25 11.5	20 9	26½ 12	21 9.5	28 13	22 10
3 0	91	30 13.5	24 11	31½ 14	25 11.5	33 15	26 12

COVERINGS

7. Each mattress shall be covered with a ticking of a quality complying with Reference No. TK 1 or TK 2 in B.S. 1781*, or with B.S. 2732†.

MAKING UP

8. The seams of the outer case shall be squarely cut and sewn with a minimum of eight stitches per inch (25 mm) by machine or five stitches per inch (25 mm) by hand. The sewing thread employed in making up the cases shall be not inferior to 24s three cord sewing cotton. The method of making up shall be one of the following, as specified by the purchaser:

a. Seams shall be piped with cotton material enclosing a smooth core not less than ⅛ in (3 mm) in diameter.

b. Seams shall be inside sewn, turned, and the edges outside sewn.

c. Seams shall be double sewn, i.e. with two separate rows of stitching inside and the case turned.

* B.S. 1781, 'Linen textiles for use by hospitals and local authorities'.

† B.S. 2732, 'Cotton tickings for use by hospitals and local authorities'.

FILLING

9. The filling materials as specified in Clauses 5 and 6 shall be evenly distributed throughout the mattress and the corners shall be properly filled and regulated.

TUFTING

10. For hand tufting, the twine shall be 3 or 4-ply hemp or flax twine with minimum breaking load 50 lb (23 kg) and runnage 555 yd/lb (1121 m/kg) ± 5 per cent complying with B.S. 2570*. When machine tufting is used, the twine shall be flax twine with minimum breaking load 60 lb (27 kg) and runnage 606 yd/lb (1221 m/kg) ± 5 per cent or cotton twine with minimum breaking load 34 lb (15 kg) and runnage 645 yd/lb (1300 m/kg) ± 5 per cent complying with B.S. 2570*.

On mattresses with linen tickings all tufting twine shall be flax; on mattresses with cotton ticking the tufting twines may be flax or hemp.

Tufts shall be of cotton wicking or wool yarn, or of two thicknesses of ticking, as specified by the purchaser. They shall be securely fastened in position and evenly tied down in such a way as to keep the filling in position and the mattress uniform in thickness. The number of ties employed in tufting each mattress shall be not less than 23 for mattresses 2 ft 6 in (76 cm) wide, and not less than 28 for mattresses 3 ft 0 in (91 cm) wide.

The number of ties for 'special size' mattresses shall be calculated *pro rata*.

BORDERS

11. The stitching twine shall be 3 ply hemp or flax twine with minimum breaking load 35 lb (16 kg) and runnage 740 yd/lb (1495 m/kg) ± 5 per cent, complying with B.S. 2570*.

The sides and end borders of the mattress shall be finished with two parallel rows of stitching, the number of stitches in each row being not less than 36 in the length of the 6 ft 3 in (190 cm) mattress; the number of stitches for all other lengths and widths shall be in proportion.

All twines shall be securely tied to form a continuous length, and no knots shall be left on the outside of the mattress.

HANDLES

12. If required by the purchaser four handles shall be provided on each mattress; the handles shall be made from the same ticking as that used for the covering (see Clause 7). Each handle shall consist of a treble thickness of the ticking material and shall be at least $2\frac{1}{2}$ in (6 cm) wide. Handles shall be fixed on the long borders of the mattress in a vertical or horizontal position at a distance of 19 in (25 cm) from each end of the mattress, measured to the centre of the handle. When vertical the handles shall be double sewn into the top and

* B.S. 2570, 'Twines made from jute, flax and hemp' (revision in preparation, which will include tufting and quilting twines).

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bottom seams of the mattress where the border joins the top and bottom ticking, and gate stitched at each end; when horizontal they shall be gate stitched or flag stitched at each end.

NOTE. Handles are provided only for the convenience of turning the mattress ; they should NOT be used for moving the patient while on the mattress.

CONSTRUCTION AND WORKMANSHIP

13. All articles complying with this specification shall be of good workmanship, and in accordance with recognized good trade practices and methods. All components, including any not specifically referred to in the various clauses of this specification, shall be of a quality at least equal to that used in recognized good practice in the trade.

MARKING

14. Each mattress shall be marked with the following particulars:

- a. Registered trade mark or registered trade name or name of the manufacturer.
- b. The year of manufacture.
- c. The description of the filling material.
- d. The dimensions of the mattress. If other than one of the standard sizes, the mattress shall also be marked with the words 'special size.'
- e. The number of this British Standard, i.e. B.S. 1818, Part 1.
- f. The certification mark of the B.S.I. as shown below:



B.S. 1818
Part 1

NOTE. This certification mark may be used by the manufacturer only under licence from the B.S.I., and particulars of the conditions under which licences are granted may be obtained from the Director, British Standards Institution, 2 Park Street, London, W.1.

PART 2. MATTRESSES FOR CHILDREN'S COTS FOR HOSPITAL AND INSTITUTIONAL USE

DIMENSIONS AND TOLERANCES

15. *a. Width and length.* Widths and lengths of finished mattresses shall be subject to a tolerance of $+0-\frac{1}{2}$ in ($+0-13$ mm).

Unless otherwise specified by the purchaser, the width and length of each finished mattress shall be in accordance with Tables 4 and 5 below.

Before the length and width of a finished mattress are measured, the mattress shall first be placed on a flat surface, pulled out and stretched, and then allowed to regain its normal shape and dimensions.

A mattress made to a size other than one of those specified below shall be clearly marked with the words 'special size' and with the length and width, and shall not vary from the stated size by more than $+0-\frac{1}{2}$ in ($+0-13$ mm).

TABLE 4. WIDTHS OF MATTRESSES FOR CHILDREN'S COTS

Nominal width of cot			Width of finished mattress		
ft	in	cm	ft	in	cm
2	0	61	1	10	56
2	6	76	2	4	71

TABLE 5. LENGTHS OF MATTRESSES FOR CHILDREN'S COTS

Overall length of cot			Length of finished mattress		
ft	in	cm	ft	in	cm
4	0	122	3	10	117
4	6	137	4	4	132
5	0	152	4	10	147

b. Borders. Depths of borders after sewing shall be 4 in (10 cm).

FILLING MATERIALS

16. Each mattress shall be filled only with one of the following materials *a* or *b*, as specified by the purchaser. No second-hand or reconditioned materials shall be used in the manufacture of these filling materials.

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a. *New curled hair, Grade 1*, complying with B.S. 3474*: Part 3, containing not less than 15 per cent by weight of long hair composed of unused horsehair and/or cow tail hair or a mixture of those hairs, the remainder being unused hog hair, or

b. *New curled fibre*, complying with Part 10 of B.S. 1425†, and comprising one of the following fibres, or mixtures thereof, either dyed or undyed:

(i) Curled coir fibre combings or bristle, but not ordinary mattress fibre.

(ii) Curled Cochin fibre.

(iii) Curled Mexican fibre.

Curling of these fibres shall be followed by boiling for not less than one hour, or steaming in a vacuum chamber with steam at a pressure of 10–20 lb/sq in (0.7–1.4 kg/cm²) for not less than 30 minutes, the vacuum chamber having first been evacuated to a pressure of approximately 10 in Hg absolute (vacuum gauge reading not less than 20 in of mercury), and drying.

QUANTITIES OF FILLING MATERIALS

17. The net weight of filling material in each mattress shall be not less than that shown in the appropriate column of Table 6.

The quantity of filling materials for 'special size' mattresses shall be calculated *pro rata*.

TABLE 6. NET WEIGHT OF FILLING MATERIAL FOR CHILDREN'S COT MATTRESSES

Mattress width		Mattress length						
		3 ft 10 in (117 cm)		4 ft 4 in (132 cm)		4 ft 10 in (147 cm)		
		Hair	Fibre	Hair	Fibre	Hair	Fibre	
ft	in	cm	lb	kg	lb	kg	lb	kg
1	10	56	10 4·5	8 3·6	—	—	—	—
2	4	71	—	—	15 6·8	12 5·4	17 7·7	13½ 6·2

COVERINGS

18. Each mattress shall be covered with a ticking of a quality complying with reference No. TK 1 or TK 2 in B.S. 1781‡, or with B.S. 2732§.

* B.S. 2894, 'Quality of fillings for bedding, upholstery, etc.'. Part 2 'Curled hair and curled hair/fibre mixtures'.

† B.S. 1425, 'Cleanliness of fillings and stuffings for bedding, upholstery, toys and other domestic articles'.

‡ B.S. 1781, 'Linen textiles for use by hospitals and local authorities'.

§ B.S. 2732, 'Cotton tickings for use by hospitals and local authorities'.