

CONFIRMED  
DECEMBER 2007

# Operating tables —

## Part 2: Specification for fixed-pedestal general operating tables

UDC 615.478.62

## Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Health Care Standards Committee (HCC/-) to Technical Committee HCC/33, upon which the following bodies were represented:

Association of Anaesthetists of Great Britain and Ireland  
 Association of Clinical Pathologists  
 British Medical Association  
 British Surgical Trades Association Incorporated  
 Castor Manufacturers' (UK) Association  
 Department of Health and Social Security  
 Department of the Environment (Property Services Agency)  
 Malaysian Rubber Producers' Research Association  
 National Association of Theatre Nurses  
 Royal College of Midwives  
 Royal College of Nursing and National Council for Nurses of the United Kingdom  
 Royal College of Surgeons of England

This British Standard, having been prepared under the direction of the Health Care Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 November 1987

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The following BSI references relate to the work on this standard:  
 Committee reference HCC/33  
 Draft for comment 81/55107 DC

ISBN 0 580 15903 5

### Amendments issued since publication

Amd. No.	Date of issue	Comments

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## Foreword

This Part of BS 6859 has been prepared under the direction of the Health Care Standards Committee at the request of the Department of Health and Social Security.

BS 6859 is published in two Parts, Part 1 specifying requirements for mobile general operating tables. Attention is drawn to BS 5724-2.22 which specifies requirements for safety of general operating tables.

BS 2891 which specifies requirements for operating table covers and pads is currently being revised. When the revision is published, clause 8 of this Part of BS 6859 will be amended to refer to it.

Appendix A gives recommendations for design of transporters which, although outside the scope of this Part of BS 6859, may be used with certain tables which have removable tops.

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### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## 1 Scope

This Part of BS 6859 specifies requirements for fixed-pedestal general operating tables with tops of four or more sections. Fixed-pedestal operating tables intended for use with specialist procedures and accessories to tables are outside the scope of this Part of BS 6859, except that dimensions for accessory clamps have been specified to ensure interchangeability of accessories between tables.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

## 2 Dimensions and height

NOTE Figure 1 shows schematic representations of a typical fixed-pedestal general operating table.

### 2.1 Table top

The length of the table top shall be not less than 1 850 mm, and the width, including the side bars, shall be not more than 620 mm.

### 2.2 Trunk section(s)

The length of the trunk section(s), i.e. excluding head and leg sections, shall be not less than 840 mm and the width of the trunk sections excluding side bars shall be not less than 470 mm.

### 2.3 Height

With the table top horizontal, the height of the table, excluding the mattress, shall be not less than 650 mm. The height of the table shall be adjustable upwards by not less than 200 mm.

## 3 General requirements

NOTE 1 Except for movements of the leg section, all movements of the table should be controllable from or near the usual head end of the table.

NOTE 2 When assessing compliance with 3.2 and 3.3, the table should be lowered by an operator experienced in the use of operating tables.

### 3.1 Table top [see Figure 1(a) and Figure 1(b)]

If the table top is removable from the base, release of a locating or locking device shall be necessary to effect removal.

### 3.2 Trendelenburg position [see Figure 2(a)]

It shall be possible to lower the table top to a position where the angle between the head end and the horizontal is at least 35° but it shall not be possible to lower the table top so that the angle exceeds 45°. The time taken to lower the table top to an angle of 35° from the horizontal shall not exceed 8 s from engagement of the lowering mechanism.

### 3.3 Reverse Trendelenburg position

[see Figure 2(b)]

It shall be possible to lower the table top to a position where the angle between the foot end and the horizontal is at least 35° but it shall not be possible to lower the table top so that the angle exceeds 45°. The time taken to lower the table top to an angle of 35° from the horizontal shall not exceed 8 s from engagement of the lowering mechanism.

### 3.4 Lateral tilt [see Figure 2(c)]

It shall be possible to tilt the table top laterally to either side to a position where the angle between the table top and the horizontal is at least 15° but does not exceed 20°.

### 3.5 Break-back point [see Figure 2(d) and Figure 2(e)]

At the break-back point, the table top shall be capable of flexion to 130° in any position where all sections are above the horizontal. The table top shall be capable of extension to an angle of not less than 220° between the upper surfaces when all sections are below the horizontal.

### 3.6 Chair or sitting position

It shall be possible to adjust the sections of the table top to form a chair or sitting position.

### 3.7 Head section

The head section shall be capable of adjustment through any angle between 45 ± 1° downwards and 20° upwards. A quick-release mechanism shall be fitted incorporating a self-locking device and capable of overriding the adjustment control.

### 3.8 Single leg section

The leg section on tables with a single leg section shall be adjustable downwards through a minimum angle of 100°.

### 3.9 Divided leg section

The two leg sections on tables with a divided leg section shall be capable of rotation outwards in a horizontal plane to subtend an angle of not less than 100° and each shall also be independently adjustable downwards through a minimum angle of 100°.

### 3.10 Detachable sections

**3.10.1** In the case of tables with a single leg section, if the table top is not removable and both head and leg sections are detachable, the head and leg sections shall be interchangeable.

**3.10.2** Detachable sections shall not be removable without the release of a locating or locking device.

### 3.11 Pedestal unit

If the pedestal rotates, a mechanism shall be provided to lock it in any position.

## 4 Table side bars

### 4.1 Materials

Side bars shall be manufactured either from stainless steel of grade 304S15 or 431S29 as specified in BS 970-1 or from a material of equivalent loadbearing capacity, wear resistance and corrosion resistance.

### 4.2 Dimensions

The cross section of side bars shall be  $31.5^{+0.25}_{-0.5}$  mm  $\times$   $6.2 \pm 0.15$  mm.

### 4.3 Distance of bar from side of table top

The gap between side bars and the side of the table top shall be not less than 10 mm.

## 5 Dimensions of side bar accessory clamps

### 5.1 Accessory clamp sockets

**5.1.1 Side bar socket.** The dimensions of the socket shall be  $32.5^{+0.5}_{-0}$  mm  $\times$   $7.0^{+0}_{-0.5}$  mm.

**5.1.2 Circular accessory socket.** The socket shall be a circle of diameter  $16.5^{+0}_{-0.5}$  mm.

**5.1.3 Rectangular accessory socket.** The dimensions of the socket shall be  $32.5^{+0.5}_{-0}$  mm  $\times$   $7.0^{+0}_{-0.5}$  mm.

**5.1.4 Square accessory socket.** The socket shall be a square with edge length  $16.5^{+0.5}_{-0}$  mm.

### 5.2 Accessory rods

**5.2.1 Circular section.** The diameter of the cross section of the rod shall be  $16.0^{+0}_{-0.5}$  mm.

**5.2.2 Rectangular section.** The dimensions of the cross section of the rod shall be  $31.5^{+0.25}_{-0.5}$  mm  $\times$   $6.2 \pm 0.15$  mm.

**5.2.3 Square section.** The edge length of the cross section of the rod shall be  $16.0^{+0}_{-0.5}$  mm.

## 6 Radiographic requirements

NOTE The design of the operating table should allow the use of a mobile X-ray image intensifier.

**6.1** Space shall be provided immediately below the table top to accommodate an X-ray film cassette with dimensions of 383.5 mm  $\times$  459.5 mm, so that it can be placed under any part of the patient.

**6.2** It shall be possible to load an X-ray film cassette from both the head and foot ends of the table.

**6.3** A device shall be provided to enable the X-ray film cassette to be placed in position.

## 7 Finishes of exposed surfaces of table

### 7.1 Stainless steel

The stainless steel, including welds shall be polished in accordance with finishes 3A, 3B, 4 or 8 of Table 1 of BS 1449-2:1983.

### 7.2 Coated steel

Applied coatings such as stoving paint or plastics coating shall comply with the requirements given in Table 1 when tested by the appropriate method.

### 7.3 Chromium and nickel plated steel

Chromium and nickel plated steel components shall be plated in accordance with service condition number 3 of BS 1224.

### 7.4 Aluminium alloy

Aluminium alloy components, if anodized, shall comply with grade AA5 of BS 1615, or shall be straight grained to a minimum of 36 grit aluminium oxide, satin finished or bright polished.

### 7.5 Other materials

If exposed surfaces of the table are made from other materials, they shall have a corrosion resistance equal to or better than the materials referred to in 7.1 to 7.4.

## 8 Mattress

The table top shall be covered by a removable, washable, antistatic mattress segmented or hinged to conform to the size and different configurations of the table top. The mattress shall be attached to the table top and shall not impede the adjustments of the table top or the fitting of accessories.

## 9 Marking

The operating table shall be marked with the following:

- a) the name or trademark of the manufacturer;
- b) the number and date of this British Standard, i.e. BS 6859-2:1987<sup>1)</sup>.

<sup>1)</sup> Marking BS 6859-2:1987 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

**Table 1 — Tests and requirements for paint and plastics coating finishes**

Test	Method	Requirements
1. Bend test	BS 3900-E1 using the type 2 apparatus and a 6 mm mandrel and burnished steel	No cracks or loss of adhesion when examined with normal corrected vision
2. Scratch resistance	BS 3900-E2: Loaded with 2 000 g	No bare metal visible
3. Impact resistance	BS 3900-E3: Indent to 3 mm	No loss of adhesion
4. Cupping test	BS 3900-E4: Indent to 3 mm on paint and reverse side	No loss of adhesion or cracks when examined with normal corrected vision

### **10 Information to be supplied by the manufacturer**

The manufacturer shall provide a statement of the attenuation of the table top.

NOTE Recommendations for radio-translucency of the table top are given in Appendix B.

## Appendix A Recommendations for transporters for use with removable table tops

**A.1** Transfer of the table top between the pedestal and transporter should be possible by manual control.

**A.2** The table top should be locked into the pedestal on takeover of the table top from the transporter.

**A.3** Any repositioning of the patient or addition and fixation of accessories should not affect the stability of a transporter/top combination.

**A.4** Provision should be made to immobilize the transporter.

**A.5** To prevent damage to floors and to ensure ease of manoeuvring, the transporter should be fitted with large diameter wheels.

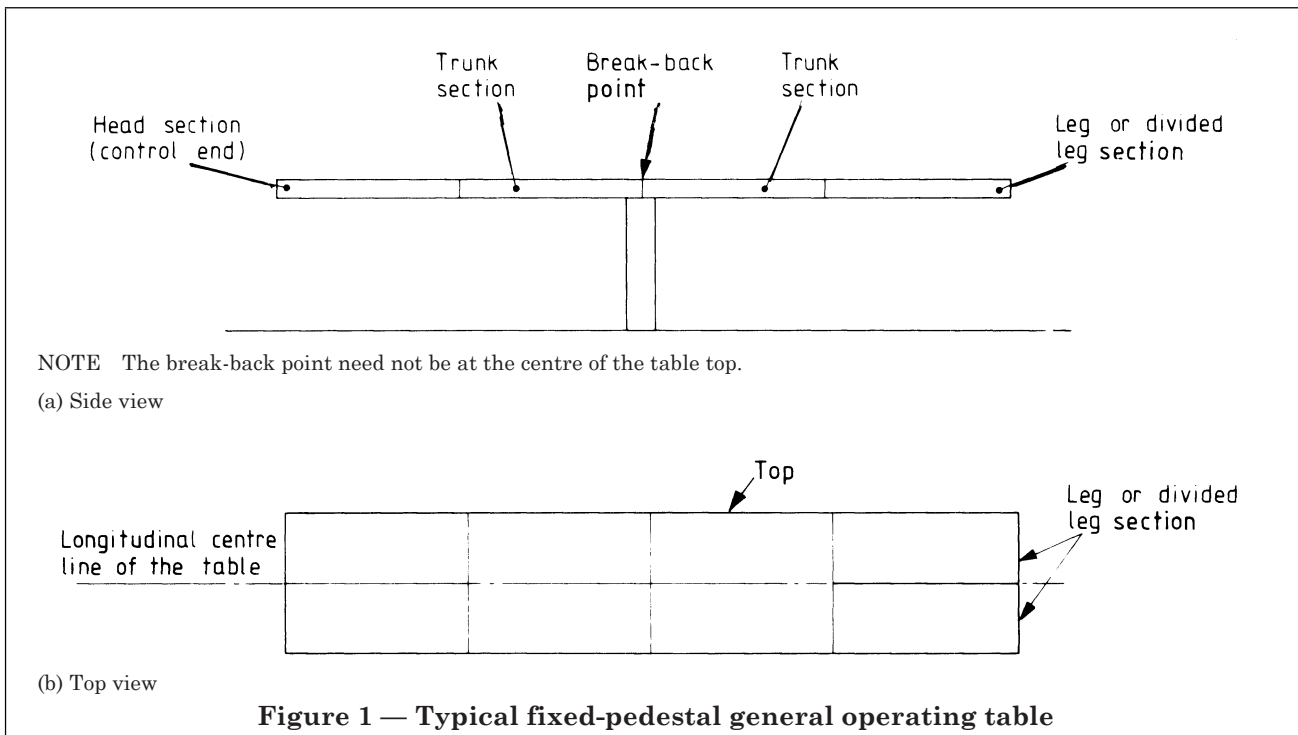
**A.6** Table tops, whilst located on their transporter, should be capable of achieving a Trendelenburg position [see Figure 2(a)] of not less than 15°.

**A.7** The transporter should have cot sides.

## Appendix B Recommendations for radio-translucency of the table top

The table top, excluding the mattress, should have an attenuation equivalent to no greater than 1 mm thickness of aluminium, determined from measurements of air Kerma under narrow beam conditions.

The measurements should be made with X-radiation from an X-ray source assembly operated at an X-ray tube voltage of 100 kV with a total filtration of 2.5 mm aluminium. The percentage ripple of the X-ray tube voltage should be less than 10 %.





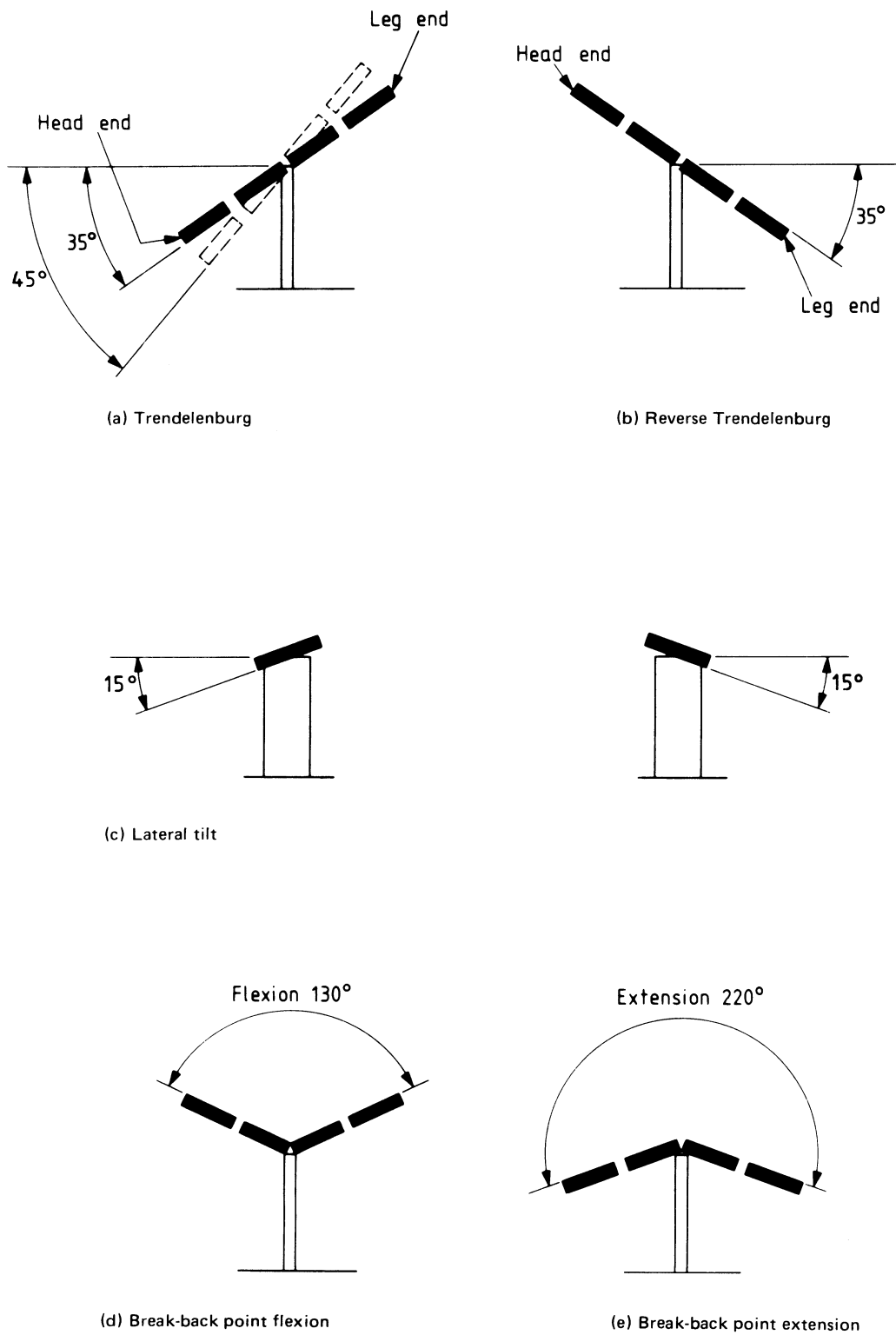


Figure 2 — Some table top positions



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## Publications referred to

- BS 970, *Specification for wrought steels for mechanical and allied engineering purposes.*
- BS 970-1, *General inspection and testing procedures and specific requirements for carbon, carbon manganese, alloy and stainless steels.*
- BS 1224, *Specification for electroplated coatings of nickel and chromium.*
- BS 1449, *Steel plate, sheet and strip.*
- BS 1449-2, *Specification for stainless and heat-resisting steel plate, sheet and strip.*
- BS 1615, *Specification for anodic oxidation coatings on aluminium.*
- BS 2891, *Specification for operating table covers or pads of cellular rubber<sup>2)</sup>.*
- BS 3900, *Methods of tests for paints.*
- BS 3900:Group E, *Mechanical tests on paint films.*
- BS 3900-E1, *Bend test (cylindrical mandrel).*
- BS 3900-E2, *Scratch test.*
- BS 3900-E3, *Impact (falling weight) resistance.*
- BS 3900-E4, *Cupping test.*
- BS 5724, *Medical electrical equipment<sup>2)</sup>.*
- BS 5724-2.22, *Specification for general operating tables.*
- BS 6859, *Operating tables<sup>2)</sup>.*
- BS 6859-1, *Specification for mobile general operating tables.*

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<sup>2)</sup> Referred to in the foreword only.

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