

Specification for

**Non-prescriptive  
graduated support  
hosiery**

ICS 61.020

**NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW**

---



## Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee CH/39, Compression hosiery and elastic hose supports, upon which the following bodies were represented:

British Medical Association  
 British Retail Consortium  
 Consumer Policy Committee of BSI  
 Department of Health — Medical Devices Agency  
 Knitting Industries' Federation Ltd.  
 National Association of Medical & Surgical Appliance Officers  
 Surgical Appliance Manufacturers' Association  
 Surgical Dressings Manufacturers' Association  
 Vascular Surgical Society of GB

This British Standard, having been prepared under the direction of the Health and Environment Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 April 1999

© BSI 05-1999

First published as BS 7563  
 March 1992

ISBN 0 580 28265 1

### Amendments issued since publication

Amd. No.	Date	Text affected
10531 Corrigendum	May 1999	Indicated by a sideline

# Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Performance	2
5 Garment description	2
6 Marking	2
Annex A (normative) Method of test for compression	4
Annex B (normative) Method to determine the heel position of thigh length stockings and tights that do not possess a reciprocated heel	12
Bibliography	Inside back cover
Figure 1 — Length of foot	3
Figure 2 — Girth positions	3
Figure 3 — Hip girth	3
Figure A.1 — Compression testing machine	8
Figure A.2 — Back face of measurement head	9
Figure A.3 — Side view of jig mounted on the measurement head	10
Figure A.4 — Apparatus for calibrating the measurement head	11
Table 1 — Compression profile	3
Table 2 — Garment description	3
Table A.1 — Girths of the adjustable former	11
Table A.2 — Positions for setting up garments for testing	12

---

## Foreword

This British Standard has been prepared by Technical Committee CH/39, Compression hosiery and elastic hose supports.

It supersedes BS 7563:1992, which is withdrawn. The major change from the 1992 edition, which comprised solely a test method for compression characteristics and stiffness, is the inclusion of specifications for performance and labelling of hosiery.

Non-prescriptive graduated support hosiery is intended to relieve minor symptoms of heavy, aching legs and to help prevent deterioration of the veins that may lead to more severe conditions. These garments are constructed from synthetic elastomeric yarns. Relief of the associated symptoms of more advanced medical conditions may require the higher levels of compression supplied by medical compression hosiery as specified in BS 6612, the UK Department of Health Drug Tariff or in the draft European Standard prEN 12718.

Attention is also drawn to BS 7672 and the draft European Standard prEN 12719, which address anti-thrombo-embolism hosiery.

The degree of compression required to return venous function towards normal varies considerably. Hosiery providing modest compression is often effective in relieving leg discomfort, particularly when the problem is subclinical. However, all garments should produce a graduation of pressure on the leg which decreases towards the thigh to improve vein emptying.

Annex A is normative and describes the test method for determining compressive capabilities of hosiery using the Mark II hose pressure tester developed by HATRA (formerly known as the Hosiery and Allied Trades Research Association), which incorporates an adjustable flat-bed former.

Annex B is normative and describes the test method for determining heel position in hosiery without a reciprocated heel incorporated into the construction.

A British Standard does not purport to include all the necessary provisions of a standard. Users of British Standards are responsible for their correct application.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

## 1 Scope

This British Standard specifies requirements for non-prescriptive support hosiery which is designed to exert a graduated compression of between 0.8 kPa (6 mmHg) and 1.6 kPa (12 mmHg) on the legs whilst standing or walking. It covers tights and stockings with and without a reciprocated heel and below-knee hosiery and socks with reciprocated heel, for men and women. It does not cover below-knee hosiery without a reciprocated heel, medical compression hosiery (which is covered in BS 6612), anti-embolism hosiery (which is covered in BS 7672), shaped support bandages without a positive location for the heel or foot and individually made garments.

Requirements for compression, compression profile, size designation, sampling and labelling are included in this standard. The test method for determining the compression exerted by hosiery is given in annex A. The method to determine heel position of above-knee hosiery without a reciprocated heel is given in annex B.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this British Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

BS 1051, *Glossary of terms relating to the mass determination of textiles*.

BS EN 26330:1994, *Textiles. Domestic washing and drying procedures for textile testing*.

BS EN 23758, *Textiles. Care labelling code using symbols*.

## 3 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

### 3.1

#### **non-prescriptive graduated support hosiery**

hosiery exerting a surface pressure of between 0.8 kPa (6mmHg) and 1.6 kPa (12 mmHg) on the surface of the ankle area which reduces progressively towards the upper leg

### 3.2

#### **compression value; compression factor**

single nominal compression value characterizing the compression performance of a garment

NOTE This is assigned by the manufacturer on the basis of measurements of similar garments and is equal to the compression which the garment is intended to exert at the ankle when worn on a leg of a size designated by the manufacturer.

### 3.3

#### **normal measuring positions**

positions at the ankle, calf and thigh of a garment at which compression is measured

NOTE 1 Additional measuring positions may also be defined by the manufacturer.

NOTE 2 Testing of designated sizes is achieved by use of the HATRA test equipment, which simulates human leg dimensions. Details of the corresponding girths and the set-up procedure are given in Tables A.1 and A.2.

### 3.4

#### **stiffness**

measure of the change in compression exerted by a garment when girth is increased or decreased from the manufacturer's original designation of girth by an amount equivalent to a change of one size position of the adjustable former of the compression testing machine

### 3.5

#### **sample set**

sample consisting of 15 legs of garments, each selected at random from the group of garments which the sample is intended to represent

### 3.6

#### **foot length**

horizontal distance between the perpendiculars in contact with the end of the most prominent toe and the most prominent part of the heel, measured with the subject standing and with the weight of the body equally distributed between both feet

[BS 4981]

NOTE See Figure 1.

### 3.7

#### **ankle girth**

horizontal girth of a human leg just above the medial malleolus, measured with the subject standing and with the weight of the body equally distributed between both feet

NOTE See Figure 2.

### 3.8

#### **calf girth**

girth of a human calf measured at its maximum circumference, the upper edge of the tape measure passing horizontally through the point of maximum circumference, measured with the subject standing with the weight of the body equally distributed on both feet

NOTE See Figure 2.

### 3.9

#### **thigh girth**

horizontal girth of a human leg measured half way between the crotch and the knee joint, measured with the subject standing with the weight of the body equally distributed on both feet

NOTE See Figure 2.

**3.10****hip girth**

horizontal girth of a human body measured round the buttocks at the level of maximum circumference [BS 5511]

NOTE See Figure 3.

**3.11****reciprocated heel**

heel pouch formed within the knit of the garment

**3.12****defined heel**

heel position as located in accordance with annex B of this British Standard

**4 Performance****4.1 Compression value**

The manufacturer shall assign a compression value in whole numbers of millimetres of mercury to each garment on the basis of compression measurements on the sample set of garments as specified in 4.2 to 4.3. When a sample set of garments is tested as described in annex A [except for change of compression with girth (stiffness) testing as described in A.5], not more than one garment shall exert a compression at the ankle outside a range of  $\pm(15\% + 1 \text{ mmHg})$  of the claimed compression value.

NOTE This tolerance takes account of the variability inherent in the manufacture of knitted elastic textiles. It has been found that if all the sample set fall within the range specified, then 9 out of 10 of the group from which the set was selected can be expected to fall within the same range, i.e. a confidence level of 90% applies.

**4.2 Change of compression with girth (stiffness)**

When a sample set of garments is tested in accordance with A.5, the mean compression of the set at each measuring position, obtained on formers one size smaller and one size larger than the size appropriate to the claim on the label, shall lie within  $\pm 25\%$  of the mean obtained when the measurements are taken on the sample set with the former set to the size appropriate to the claim on the label.

**4.3 Compression profile**

When tested in accordance with A.1 to A.4 the mean pressure at the three measuring positions of a sample set shall conform to Table 1 for the appropriate compression value.

If the garment is intended to be retained in position on the leg by a welt or similar means, the means of retention shall not be restrictive.

**5 Garment description**

When describing a garment, its size shall be described by body measurements as defined in clause 3 and specified in a), b) or c) of this clause. Its compression value shall be described in accordance with Table 2.

a) *Below-knee garments*

i) mean ankle girth for which the garment is intended<sup>1)</sup>;

ii) maximum foot length.

b) *Thigh length stockings*

i) mean ankle girth for which the garment is intended<sup>1)</sup>;

ii) maximum foot length.

c) *Tights*

i) mean ankle girth for which the garment is intended<sup>1)</sup>;

ii) maximum foot length, for garments with a closed toe and heel (with or without reinforcement);

iii) range of hip girths;

iv) wearer's height.

**6 Marking**

Garments shall have the following information clearly marked on the package:

a) the name, trade mark or other means of identification of the manufacturer and/or supplier;

b) the number and date of this British Standard, i.e. BS 7563:1999;

c) the compression value claimed for the garment in accordance with clause 5;

d) the garment description conforming to clause 5;

e) handwashing instructions conforming to BS EN 23758.

<sup>1)</sup> If defined as being different from that described in Table A.2 and its note, i.e. if the ankle girth for which the garment is being tested is different from former setting number 5.

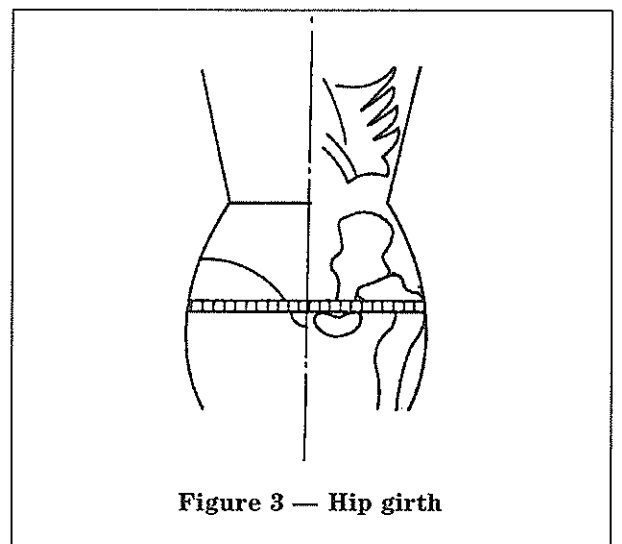
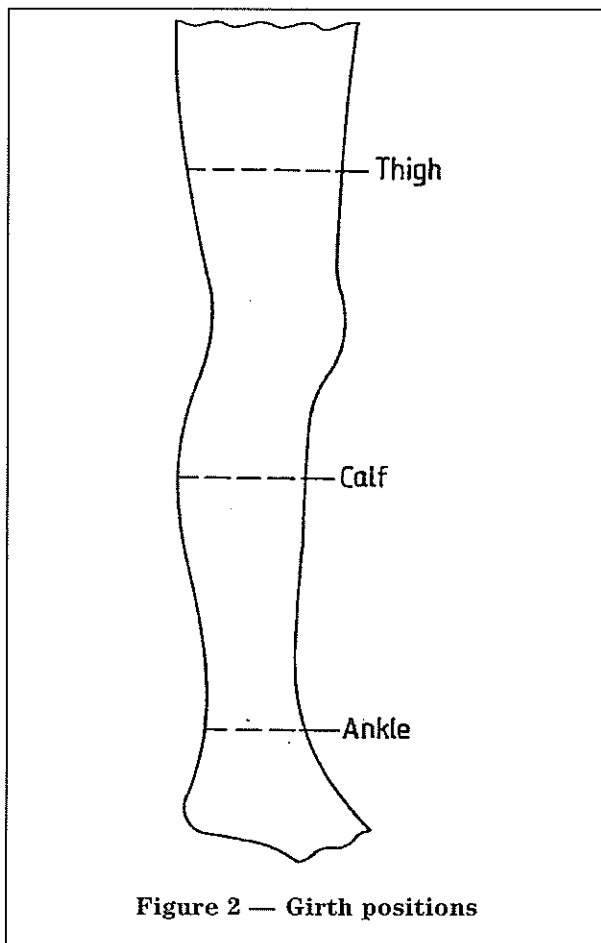
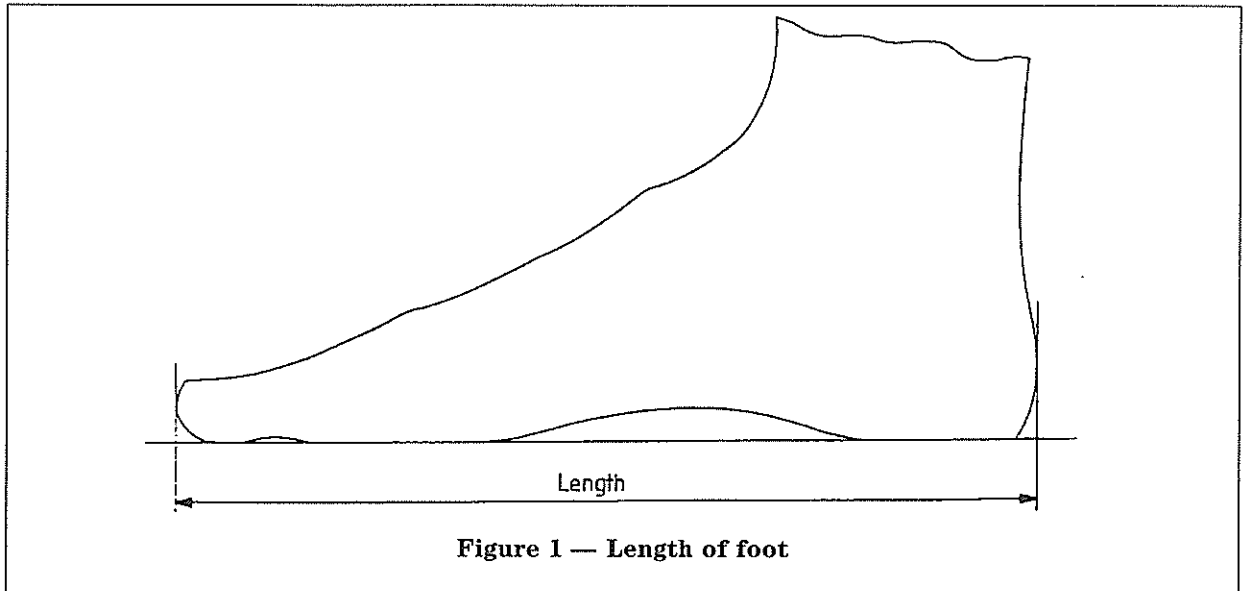


Table 1 — Compression profile

Compression value at the ankle mmHg	Proportion of ankle compression at calf %	Proportion of calf compression at thigh %
6 to 12	Less than 100	Less than 100

Table 2 — Garment description

Garment description	Nominal ankle pressure mmHg
Light support	6
Medium support	8
Firm support	10
Extra firm support	12

## Annex A (normative)

### Method of test for compression

#### A.1 Principle

The garment is loaded onto an adjustable former, simulating wearing the garment on a human leg. The circumferential tension value is determined by a measuring head pressed against the stretched fabric at various points along the length of the adjustable former. The value obtained is converted to a value for compression. By changing the size of the former, measurements of the stiffness of the garment, i.e. the extent to which compression changes with girth are taken.

For a fuller description of the functioning of the apparatus see Peat (1978) [1].

#### A.2 Apparatus

**A.2.1 Hosiery compression testing machine,** (see Figure A.1) comprising an adjustable former and a measuring head which conform to the following:

- a) adjustable former consisting of:
  - 1) a flat former, consisting of two metal bars arranged to give a simplified leg form, the movable top bar capable of being lowered by a hand lever to enable the garment to be loaded;
  - 2) pivots at each end of the former which can be moved to different holes to enable the former to adopt any one of seven girths given in Table A.1;
  - 3) a fixed lower bar having two curved attachments simulating the calf and thigh, with clips attached to the movable top and fixed lower bars carrying conventional suspender-type fasteners to hold the garments, the clips being movable along the bars to hold garments at the correct position according to size;
  - 4) a transverse rail having three marked positions to which the head is set in order to ensure that pressures are measured in the same position for all garments irrespective of their size. The marked positions locating the measuring points shall be positioned 100 mm, 310 mm and 600 mm respectively from a sole point;
  - 5) a sole point, representing the sole of the foot on former setting number 4, lying at the intersection of the line of the sole (see inset in Figure A.1) of the simulated foot with a line midway between the outer surfaces of the movable top and fixed lower bars;
- b) measurement head consisting of the following:
  - 1) a movable tongue 25 mm wide and a guard plate which prevents excessive movement of the tongue, and designed to be sensitive to tension in the garment only in the circumferential direction (see Figure A.2);
  - 2) a motor within the head which balances the force exerted by the fabric on the tongue;
  - 3) a digital display which shows a reading proportional to the fabric tension.

**A.2.2 Jig for checking setting of the measurement tongue,** as shown in Figure A.3.

**A.2.3 Feeler gauge,** of thickness  $(0.075 \pm 0.01)$  mm.

**A.2.4 Equipment for calibrating the measurement head,** comprising a pin, spring, tape, reference weight of mass  $(400 \pm 2)$  g and a small screwdriver for adjusting the two potentiometers.

NOTE The equipment is shown mounted on the compression test machine in Figure A.1.

#### A.3 Preparation of apparatus

##### A.3.1 Checking the setting of the measurement tongue

NOTE The measurement head is illustrated in Figure A.2.

Check the setting of the measurement tongue in relation to its guard plate if the head is knocked or otherwise mishandled and in any case at intervals of not more than three months by the following procedure.

- a) Slide the jig supplied with the instrument (A.2.2) over the top of the measurement head [A.2.1b)] as shown in Figure A.3 so that the brass plate inside the jig contacts the guard plate at each side.
- b) Read the display by pressing the operating button.
- c) Insert the feeler gauge (A.2.3) between the brass plate and the measurement tongue and read the display again.
- d) If the reading without the feeler gauge is more than 200, or the reading with the feeler gauge is less than 200, the head is out of alignment and the supplier of the instrument should be consulted.

NOTE The reading is a dimensionless number.

##### A.3.2 Calibration of the measurement head

When the machine is in use, calibrate the measurement head once a day by the following procedure.

- a) Remove the lower suspender clip plate, set the former to setting number 6 and raise the movable top bar by means of the raising bar.
- b) Take the calibration assembly of pin, spring, tape and reference weight (A.2.4), and insert the pin in the horizontal hole in the movable top bar, adjacent to suspender clip hole number 1. Allow the weight to tension the tape hanging across the face of the fixed lower bar, with the bottom of the weight suspended about 25 mm higher than the traverse rail as shown in Figure A.4.

Adjust the pin, further into or out of the hole to allow the tape to hang very close to the fixed lower bar, but not to touch it.

Allow the tape to hang for not less than 3 min prior to the next step.

- c) Set the zero by sliding the head to a position towards the ankle end of the traverse bar at a distance of about 150 mm from the tape; move the head into contact with the fixed lower bar, and press the operating button to take a reading. Adjust the zero potentiometer to give a reading of 000.



d) Set the scale by tilting the head away from the fixed lower bar and slide it along to line up the tape with the centre of the head. If the reference weight is disturbed, steady it from swinging before proceeding. Move the head towards the fixed lower bar to contact the tape firmly, and ensure contact between the head, the tape and the bar.

NOTE This first contact is to stabilize the tape. No reading is taken.

e) Swing the head away from the tape and then move it back to contact the tape. Hold the operating button for 3 s to 7 s to allow stabilization, then adjust the scale potentiometer to obtain a reading of 182.

#### A.4 Procedure for determination of compression

##### A.4.1 Garment preparation

Wash each garment once only, using the hand washing procedure described in BS EN 26330:1994 at a temperature of 40 °C. Dry the garment flat as described in BS EN 26330:1994, Procedure C.

NOTE This procedure is intended to eliminate any temporary effect on the compression caused by a finish applied to the garment during manufacture which would be easily removed by normal washing.

##### A.4.2 Atmosphere for conditioning and testing

A.4.2.1 Condition the dry samples for not less than 16 h in the standard temperature atmosphere for conditioning and testing textiles specified in BS 1051 [i.e. temperature of  $(20 \pm 2)$  °C and relative humidity of  $(65 \pm 2)$  %].

NOTE When conditioning, do not stack garments one on top of another and, during the last 2 h, allow each to hang freely without contact with other garments.

A.4.2.2 Carry out the testing under the conditions specified in A.4.2.1.

NOTE A change of relative humidity of 10 % has been observed to cause a change of 5 % to 15 % in measured tension.

##### A.4.3 Setting up the compression testing machine

###### A.4.3.1 Choice of girth size

Unless otherwise stated by the garment manufacturer, set up the adjustable former to former setting number 5 as given in Table A.1 by inserting the ends of the movable top bar in the appropriately numbered holes in the movable inner foot (see inset in Figure A.1) and the upper adjustment bar. Ensure that the movable bar is engaged in the same numbered holes.

###### A.4.3.2 Setting up the former

Unless otherwise stated by the manufacturer of the garment, insert the calf piece, thigh piece and suspender clip in the positions given in Table A.2.

##### A.4.4 Loading the garment

###### A.4.4.1 Initial procedure

Ensure that the measurement head is vertical, is positioned at the ankle end and is clear of the adjustable former. Proceed as described in A.4.4.2 or A.4.4.3 as appropriate.

###### A.4.4.2 Stocking and tights

A.4.4.2.1 With the movable top bar lowered, place the garment uniformly over the former with the reciprocated heel or, if there is not a reciprocated heel position, the defined heel position centred over the heel of the foot section of the former.

Locate the defined heel position in accordance with annex B.

A.4.4.2.2 Ease the garment over the former until the welt is positioned over the suspender clip. Insert the suspender button into the fixed lower bar clip so that it engages the garment at a point 12 mm above the bottom of the welt for stockings and 12 mm below the crotch position for tights.

A.4.4.2.3 With the raising bar, partly raise and then lower the movable top bar in order to centralize the garment. Hold the garment onto the movable top bar close to its suspender point and fix it in the top suspender clip at a point 12 mm above the bottom of the welt for stockings and 12 mm below the crotch position for tights.

A.4.4.2.4 With one hand, hold the garment in position on the former at the heel. With the other hand smooth the garment once only along the movable top bar from the ankle end to the thigh end with sufficient force to cause slack fabric to appear at the thigh end.

A.4.4.2.5 With one hand still holding the heel position, smooth the garment once only along the fixed lower bar from the ankle end to the thigh end with sufficient force to cause slack fabric to appear at the thigh end.

A.4.4.2.6 Raise and lower the movable top bar fully three times, then raise it once more and leave it in the extended position.

NOTE This repeated re-tensioning is to relax the garment and allow it to position itself naturally on the former as it would on a human leg.

###### A.4.4.3 Below-knee stockings and below-knee socks

A.4.4.3.1 With the movable top bar lowered, place the garment uniformly over the former with the reciprocated heel or, if there is not a reciprocated heel position, the defined heel position centred over the heel of the foot section of the former.

Locate the defined heel position by means of the method given in annex B.

A.4.4.3.2 Ease the garment over the former until the top of the below-knee stocking or sock is positioned above the calf piece.

A.4.4.3.3 With the raising bar, partly raise and then lower the movable top bar in order to centralize the garment. Hold the garment onto the movable top bar at the top of the below-knee stocking or sock, and ease it towards the thigh end.

**A.4.4.3.4** Using both hands, firmly smooth the garment in a direction from the ankle to the welt once only to the position intended during wear. Check that the heel position is correct.

**A.4.4.3.5** Raise and lower the movable top bar fully three times, then raise it once more and leave it in the extended position.

Because the suspender mechanism is outside this range, hold the garment gently at the top during re-tensioning.

**NOTE** This repeated re-tensioning is to relax the garment and allow it to position itself naturally on the former as it would on a human leg.

#### **A.4.5 Measurement of compression**

Commence the following procedure 1 min to 2 min after loading of the garment is completed.

- a) With the measurement head in a vertical position, slide it along the traverse rail so that the datum edge of the base corresponds to the mark for the ankle position.
- b) Pivot the measurement head until the top portion contacts the garment and is held firmly against the fixed lower bar. Press and hold the operating button and, after waiting 3 s to 7 s, read and record the tension shown on the digital display.
- c) Release the button and pivot the measurement head to its vertical position out of contact with the garment.
- d) Repeat steps a), b) and c) with the measurement head at the calf position and, if appropriate, again at the thigh position. If required, carry out the measurement procedure at the welt position and any other appropriate leg position.
- e) Pivot the measurement head to the vertical position clear of the former and slide it along the traverse rail to the ankle end. Lower the movable top bar with the raising bar, take out the suspender buttons if used and remove the garment from the former.

#### **A.4.6 Calculation of compression value**

Convert the displayed tension readings to compression values expressed in millimetres of mercury either using the tables supplied with the machine or using the following equation:

$$p = \frac{4r}{g}$$

where

- $p$  is the compression value in millimetres of mercury (mmHg);
- $r$  is the reading displayed ( $r = kt$  where  $k$  is a constant for the machine and  $t$  is the fabric tension/centimetre width);
- $g$  is the girth in centimetres (cm).

**NOTE** This equation is based on the Laplace equation which relates the radial pressure exerted by the wall of a distended tube, the circumferential tension in the wall of the tube and its radius of curvature (pressure  $\propto$  tension/radius). The radius used assumes a circular cross-section.

### **A.5 Procedure for determination of change of compression with girth (stiffness)**

#### **A.5.1 Measurement of stiffness**

**A.5.1.1** Condition the samples as described in **A.4.2.1** before testing.

**A.5.1.2** Set the former to one setting number less than the normal for the garment (i.e. usually setting number 4) (see **A.4.3.1**).

**A.5.1.3** Load the garment and measure the compression values as described in **A.4.4** and **A.4.5** under the conditions specified in **A.4.2.1**.

**A.5.1.4** Remove the garment from the former and allow it to relax for not less than 20 min.

**A.5.1.5** Set the former to the normal setting number for the garment (i.e. usually setting number 5) (see **A.4.3.1**) and, using the same garment, repeat **A.5.1.3**.

**A.5.1.6** Remove the garment from the former and allow it to relax for not less than 20 min.

**A.5.1.7** Set the former to one setting number greater than the normal for the garment (i.e. usually setting number 6) (see **A.4.3.1**) and, using the same garment, repeat **A.5.1.3**.

#### **A.5.2 Calculation of stiffness results**

**A.5.2.1** Calculate the compression value for each measurement as specified in **A.4.6**.

**A.5.2.2** Calculate the mean compression values for the sample set at:

- a) the measurements made in **A.5.1.3** at the ankle position;
- b) the measurements made in **A.5.1.3** at the calf position;
- c) the measurements made in **A.5.1.3** at the thigh and/or other position if applicable;
- d) the measurements made in **A.5.1.5** at the ankle position;
- e) the measurements made in **A.5.1.5** at the calf position;
- f) the measurements made in **A.5.1.5** at the thigh and/or other position if applicable;
- g) the measurements made in **A.5.1.7** at the ankle position;
- h) the measurements made in **A.5.1.7** at the calf position;
- i) the measurements made in **A.5.1.7** at the thigh and/or other position if applicable.

**A.5.2.3** For measurements made at the ankle, record whether the mean compression values with the former set at one setting number less and at one setting number greater than the setting number appropriate to the garment (usually setting numbers 4 and 6 respectively) are within  $\pm 25\%$  of the mean compression values obtained when the former is at its correct setting for the garment (usually setting number 5).

**A.5.2.4** Repeat **A.5.2.3** for measurements made at every other measurement position.

### **A.6 Test report**

The test report shall contain at least the following information:

- a) the number and date of this British Standard, i.e. BS 7563:1999;
- b) sufficient information to identify the garment;
- c) the size, style and shade of the samples of the garment tested;
- d) whether or not the garment had a reciprocated heel;
- e) the former setting number of the garment used for the test if not setting number 5;
- f) the compression values and/or stiffness results as obtained in **A.4.6** and/or **A.5.2** expressed in millimetres of mercury;
- g) the date(s) of the tests;
- h) the sample set if different from that defined in **3.5**.

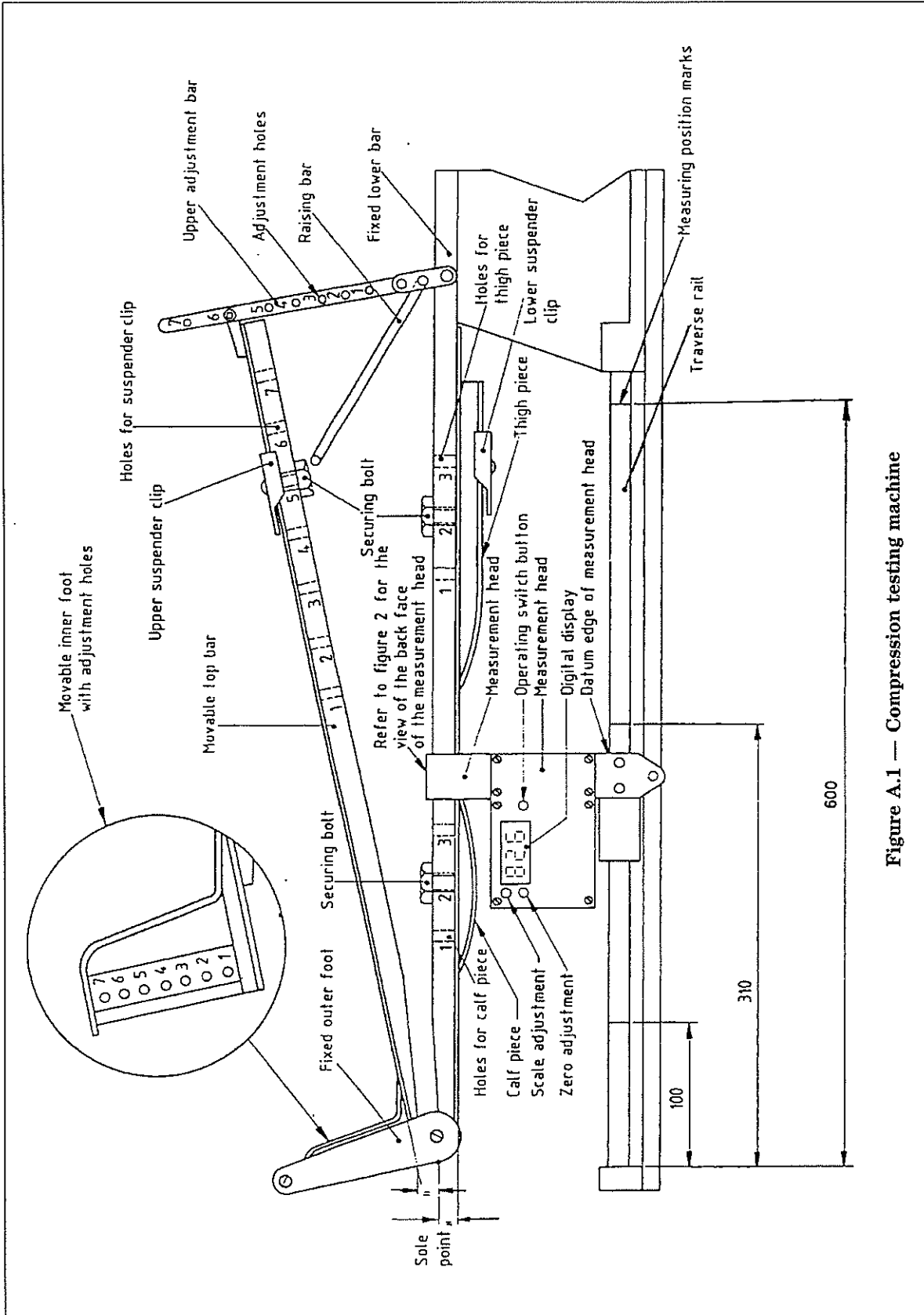
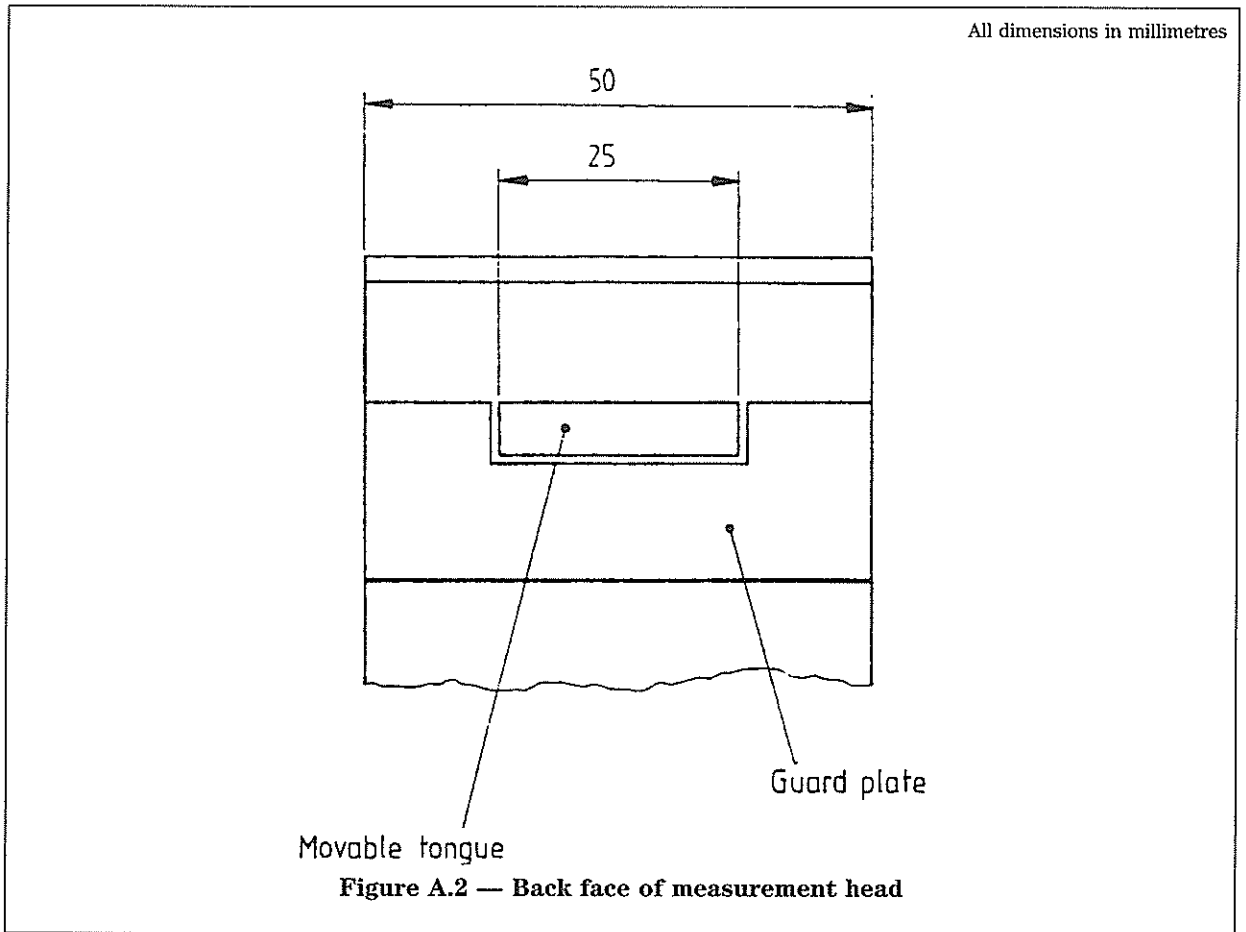


Figure A.1 — Compression testing machine



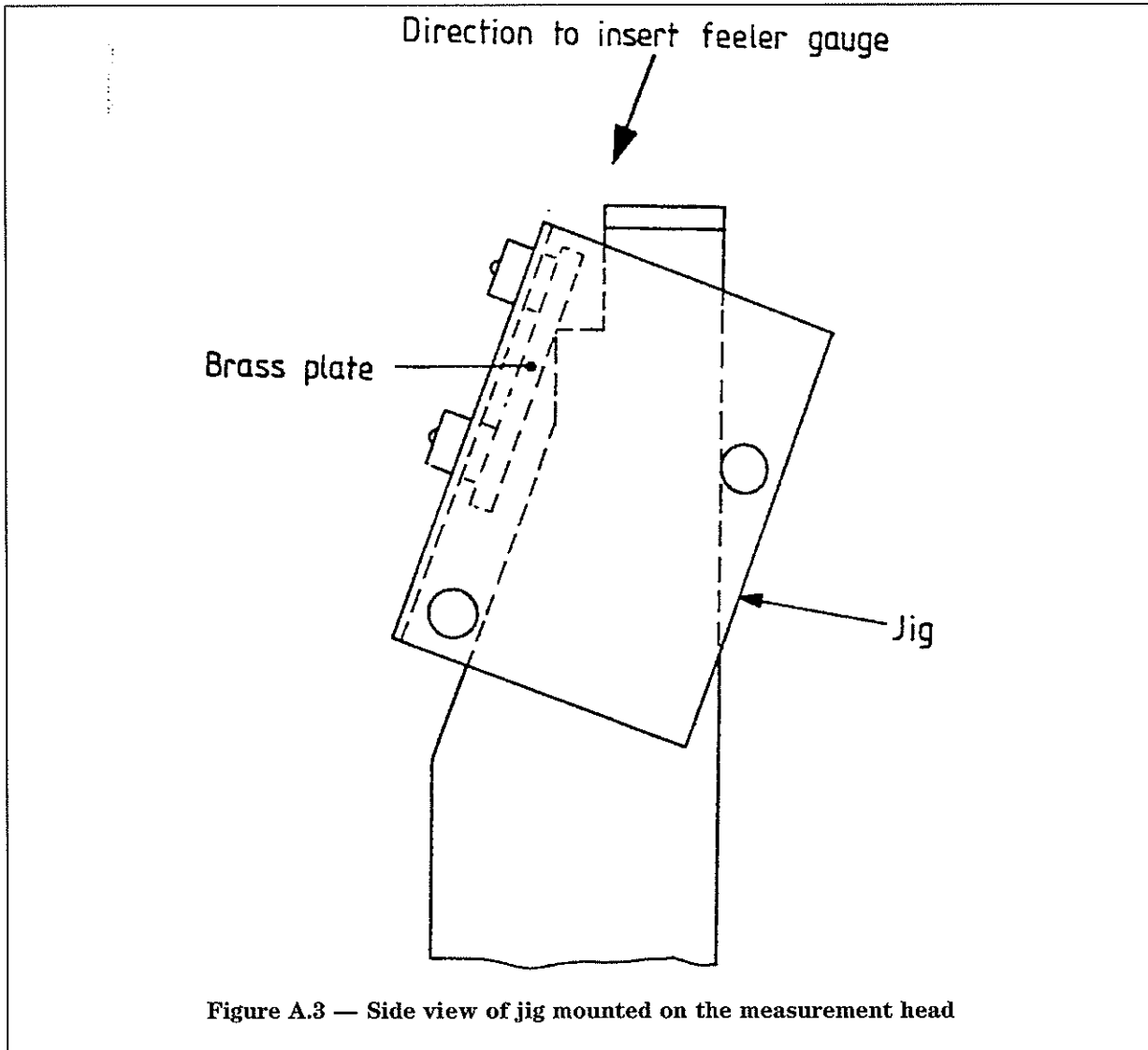


Figure A.3 — Side view of jig mounted on the measurement head

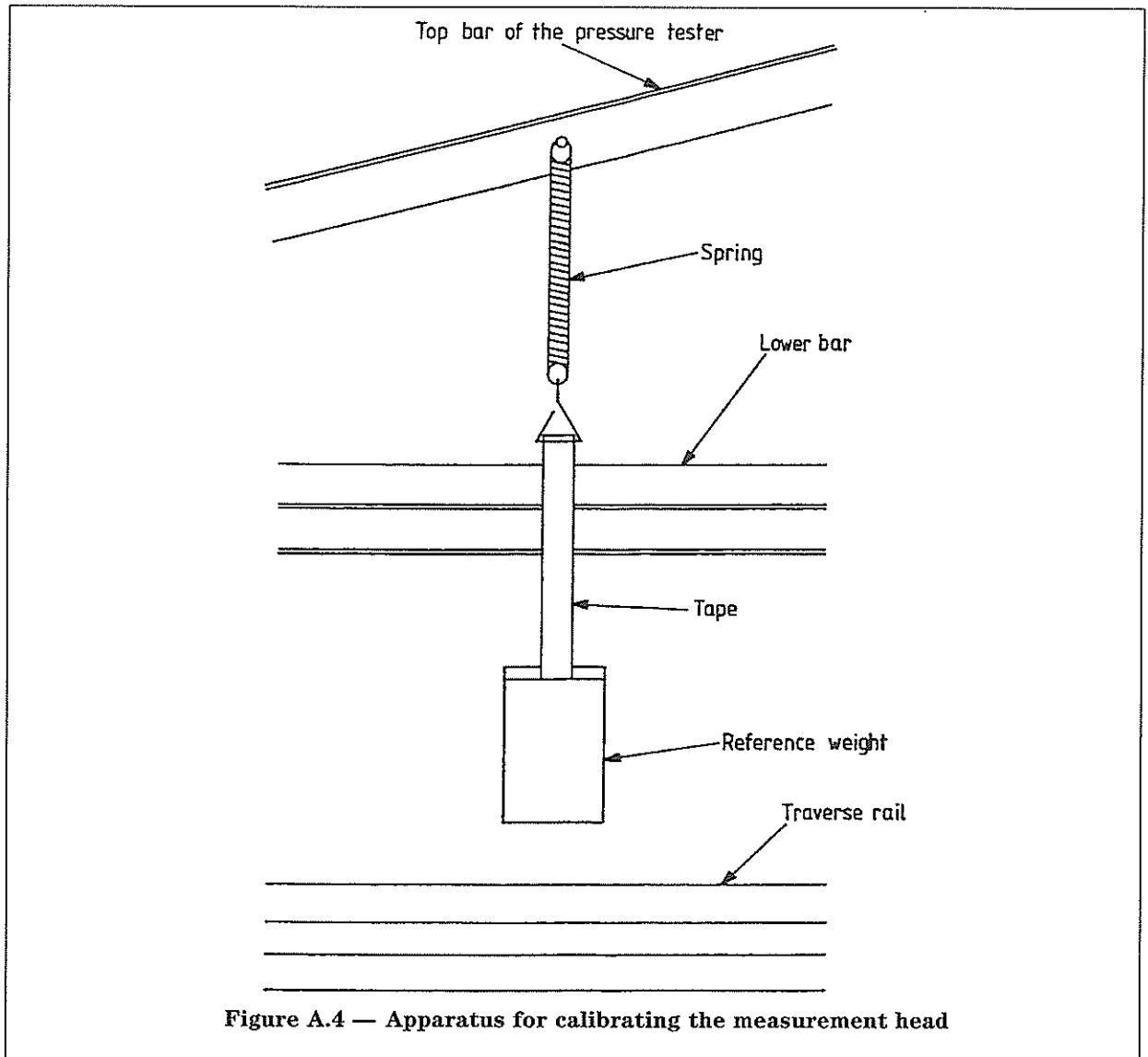


Figure A.4 — Apparatus for calibrating the measurement head

Table A.1 — Girths of the adjustable former

Former setting number	Girths of the former <sup>a</sup>		
	Ankle mm	Calf mm	Thigh mm
1	172	289	379
2	187	309	406
3	204	330	434
4	223	354	464
5	243	379	497
6	265	406	532
7	288	436	569

<sup>a</sup> Girths at other positions can be obtained by measurement of the former (see A.4.6).

Table A.2 — Positions for setting up garments for testing<sup>a</sup>

Type of garment	Size of garment	Hole number for calf piece	Hole number for thigh piece	Hole number for suspender clip
Stockings	Small	1	1	1
Stockings	Medium	2	2	2
Stockings	Large	3	3	3
Stockings	Extra-large	3	3	3
Stockings	One-sized	2	2	2
Tights	Small	1	1	4
Tights	Medium	2	2	5
Tights	Large	3	3	6
Tights	Extra-large	3	3	6 or 7
Tights	One-sized	2	2	6
Below-knee stockings and socks	Small	1	n/a	Not suspended
Below-knee stockings and socks	Medium	2	n/a	Not suspended
Below-knee stockings and socks	Large	3	n/a	Not suspended
Below-knee stockings and socks	Extra-large	3	n/a	Not suspended
Below-knee stockings and socks	One-sized	2	n/a	Not suspended

<sup>a</sup> Former setting number 5 is used for measuring the compression value unless the manufacturer of the garment states ankle girth on the pack.

## Annex B (normative)

### Method to determine the heel position of thigh length stockings and tights that do not possess a reciprocated heel

#### B.1 Principle

The hose is gently stretched to a fixed length and the approximate heel position is measured from the toe extremity.

#### B.2 Apparatus

**B.2.1** A ruler, tape measure, or calibrated board, capable of measuring the stretched hose to an accuracy of  $(1\ 000 \pm 2)$  mm.

#### B.3 Method

##### B.3.1 Tights

**B.3.1.1** Without stretching, gently straighten both of the legs of the tights so that they are approximately flat and free from any twisting.

**B.3.1.2** Grip one leg of the tights at the extremity of its toe and also at a position in line with the lowest point of the gusset.

**B.3.1.3** Gently stretch the leg so that the distance between the two gripping points is maintained at 1 000 mm.

**B.3.1.4** On the stretched leg, measure and mark a position 200 mm from the extremity of its toe. This mark approximates the "as worn" heel position used in A.4.4.2.1.

**B.3.1.5** Repeat process B.3.1.2 to B.3.1.4 to locate the heel position of the other leg.

##### B.3.2 Stockings

**B.3.2.1** Without stretching, gently straighten both stocking legs so that they are approximately flat and free from any twisting.

**B.3.2.2** Grip one stocking leg at the extremity of its toe and also at a position at the end of the leg fabric (the welt/linking position).

**B.3.2.3** Gently stretch the leg so that the distance between the two gripping points is maintained at 900 mm.

**B.3.2.4** On the above stretched leg, measure and mark a position 200 mm from the extremity of its toe. This mark approximates the "as worn" heel position used in A.4.4.2.1.

**B.3.2.5** Repeat B.3.2.2 to B.3.2.4 to locate the heel position of the other leg.



---

## Bibliography

### Standards publications

- BS 4981, *Specification for Mondopoint footwear sizing and marking system.*  
BS 5511, *Size designation of clothes — definitions and body measurement procedure.*  
BS 6612, *Specification for graduated compression hosiery.*  
BS 7672, *Specification for compression, stiffness and labelling of anti-embolism hosiery.*  
prEN 12718:1996, *Medical compression hosiery.*  
prEN 12719:1996, *Anti-thrombo embolism stockings.*

### Non-standards publications

- [1] Peat, D, *The HATRA hose pressure tester. Montreaux symposium 1977: Elastic stockings and compression bandages. Medita 3a/78.*

---

## BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

### Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 0181 996 9000. Fax: 0181 996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

### Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 0181 996 7000. Fax: 0181 996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

### Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 0181 996 7111. Fax: 0181 996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 0181 996 7002. Fax: 0181 996 7001.

### Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 0181 996 7070.

BSI  
389 Chiswick High Road  
London  
W4 4AL