

Specification for

Non-prescriptive graduated support hosiery

ICS 61.020

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Committees responsible for this British Standard

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- 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

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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It supersedes BS 7563:1992, which is withdrawn.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.

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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 intended¹⁾;
- ii) maximum foot length.

b) Thigh length stockings

- i) mean ankle girth for which the garment is intended¹⁾;
- ii) maximum foot length.

c) Tights

- i) mean ankle girth for which the garment is intended¹⁾;
- 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.

¹⁾ 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.