

## Chapter 1 Sizing, standard body measurements and constructing block patterns

<i>Industrial sizing systems</i>	8
<i>Standard body measurements</i>	9
<i>Body measurements for high-street fashion garments</i>	10
<i>Standard body measurements – women's sizing</i>	11
<i>Constructing block patterns</i>	13
<i>Block patterns</i>	13
<i>Types of blocks available in the book</i>	13

### General information

This chapter is written mainly for students who are going into the clothing industry and require knowledge of sizing and block construction. Methods of using the book for creating patterns for individual figures are placed in Chapter 15.

The chapter explains how size charts in the clothing industry are constructed, and offers a range of size charts. It also explains methods of using blocks as a base for pattern adaptation and lists the blocks available in the book.

## Industrial sizing systems

### Measurement surveys

Manufacturers of mass-produced garments need body measurement data to create sizing systems. Obtaining reliable data is very costly; thousands of subjects have to be measured and it is difficult to obtain public money to do them. The last entirely funded government survey, made publicly available, was in 1957. The government and retailers joined together to undertake the last British survey (Size UK) in 2001 using 3D scanning equipment. This creates 3D scanning images that give added information of body shape changes in the population. The cost of gathering the data is seen as commercially valuable, and it is difficult for small companies to have access to it. Some manufacturers undertake small scale sizing surveys for their niche markets. These surveys, particularly those done in developing countries, still use manual methods of body measuring.

*Apparel, Size and Fit: A definitive guide*, was published by The Association of Suppliers to the British Clothing Industry (ASBCI) in 2015. It is a comprehensive review of information, available for companies in this complex area of size and fit.

### British and European standards

Pattern cutters and graders in Europe and Asia use the metric system. Many UK manufacturers now cut their patterns in metric measurements but then convert their sizing to the imperial divisions of two inches for sales labelling.

The European Committee for Standardisation (CEN) produces guides to measuring and labelling. Its aim is to provide a coherent method of sizing and labelling. It is signed up to by most European countries including the UK and is available to companies.

This book is based on metric sizing and divisions. The size charts in this book therefore conform to the CEN standards listed in the UK as **BS EN** and are available from British Standards.

**BS EN 13402-1-2001** *Size designation of clothes – Part 1: Terms, definitions and body measurement procedure*

**BS EN 13402-2-2002** *Size designation of clothes – Part 2: Primary and secondary dimensions*

**BS EN 13402-3-2013** *Size designation of clothes – Part 3: Measurements and intervals*

This standard offers charts showing intervals between sizes using the primary dimensions. It also shows a range of alternative measurements that manufacturers can use for secondary dimensions such as waist or hips.

**March 2016** The three standards have been revised and circulated for approval by the member countries (an English language version of the drafts is available from sales@beuth.de. It is expected that they will be published in the UK later in 2016, as new BS EN standards.

**Note:** The new amendments (2016) to the earlier standards do not affect the size chart information offered in this book.

### Size charts and labelling

The use of standards by manufacturers is voluntary and explains the confusing differences between size charts and labels in the retail stores and online. Sizing for the general population now offers more generous measurements within their coding systems of 12, 14, 16 etc. or S, M, L, etc. (see **Special note** below). However, garment codes in the young fashion market often mean very different sizing. This is confusing when some garments are only labelled by their codes. However, large retailers' websites offer more detailed information with body diagrams of body measurement positions (pictograms), size charts and coding conversions.

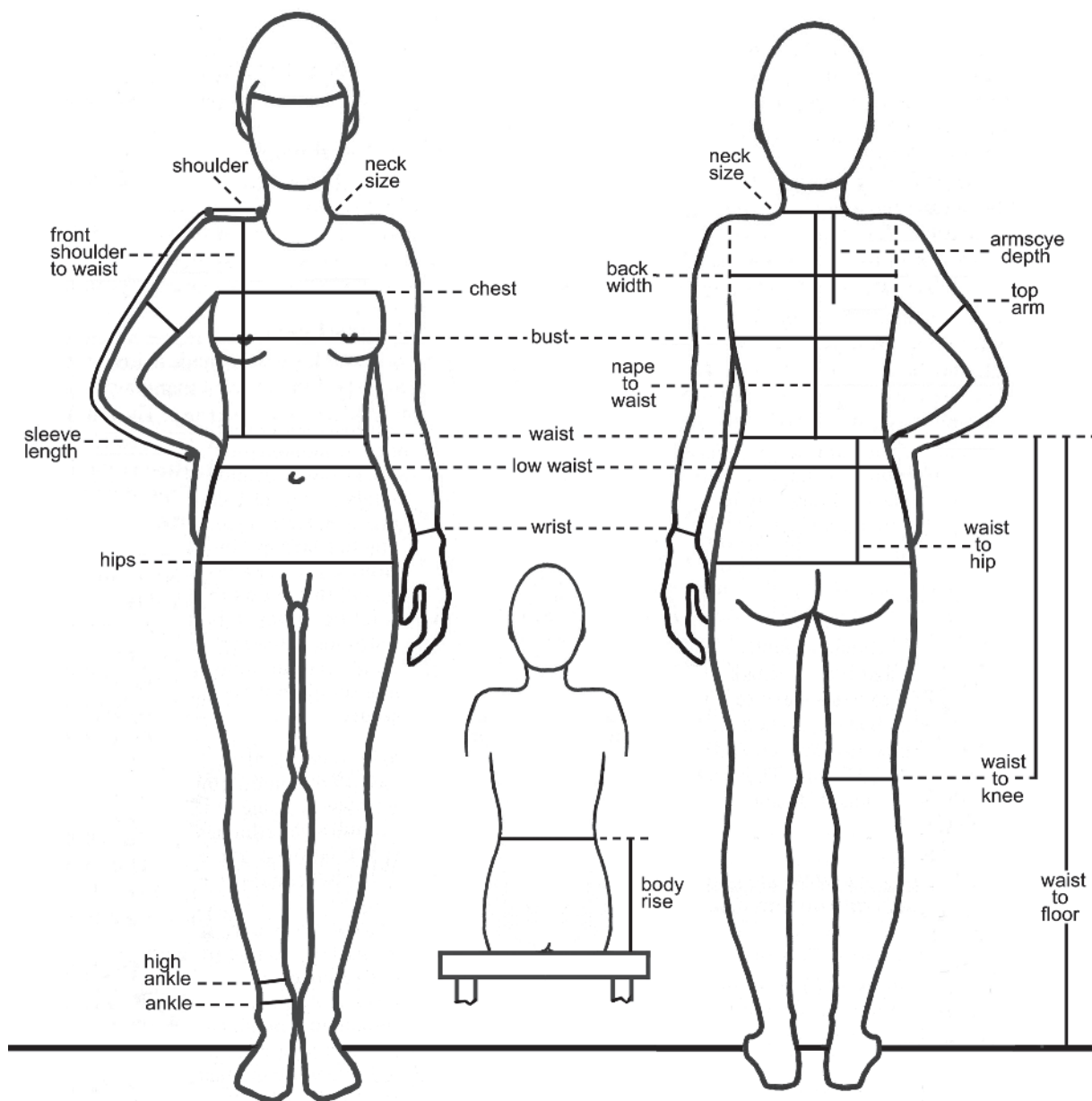
Many retailers research their markets and recognize their main customer base. Their suppliers will take into account the shape as well as the body measurements of their target market. They will note the growing obesity in the general population but recognize that the shape of a high fashion teenager is quite different from that of the mature woman. Designers also note that the idea of a 'good fit' is also different in the two markets. Two size charts for the young athletic figure and two standard size charts for mature women are included in this chapter.

### Size charts of body measurements in this book

**Special note** The coding in the Standard Size Charts for women (**3** and **4** below) have been updated to take account of the current larger size of the 'average' woman. Size medium (M) now constructed to fit a bust size range of 90–96cm.

- (1) Body measurements – for young high fashion retail outlets, sizes 6–16, page 10.
- (2) Body measurements – for young high fashion retail outlets, sizes XS, S, M, L, XL, page 10.
- (3) Body measurements – for women's standard sizes, 4cm and 6cm increments, sizes 6–24, page 11.
- (4) Body measurements – for women's standard sizes, XS, S, M, L, XL, page 12.

## Standard body measurements



The diagram shows the position of the body measurements listed in the size charts (pages 10–12)

## Body measurement charts for high-street fashion garments

(This size chart is useful for students creating high fashion wear to fit model figures.)

The retail sector that sells high fashion to the young market uses size charts that fit a youthful or athletic figure. Their ranges appeal to young teenagers and therefore many companies in this market have extended the lower end of their size range and reduced the upper end of the range. This size chart reflects these marketing pressures. The even size increments between the sizes have been constructed for simple grades.

**Note** For garment sizes (e.g. cuff sizes and trouser bottom widths) see the size chart on page 11.

### 4cm increments

Young women of medium height, 160–172 cm (5ft 3in–5ft 7½in)						
Size code	6	8	10	12	14	16
bust	76	80	84	88	92	96
waist	56	60	64	68	72	76
<b>low</b> waist (5cm below natural waist)	66	70	74	78	82	86
hips	82	86	90	94	98	102
back width	31.4	32.4	33.4	34.4	35.4	36.4
chest	28.8	30	31.2	32.4	33.6	34.8
shoulder	11.5	11.75	12	12.25	12.5	12.75
neck size	34	35	36	37	38	39
dart	5.2	5.8	6.4	7	7.6	8.2
top arm	25.5	26.5	27.5	28.5	29.5	30.5
wrist	14.5	15	15.5	16	16.5	17
ankle	22.5	23	23.5	24	24.5	25
high ankle	19.5	20	20.5	21	21.5	22
nape to waist	39.8	40.2	40.6	41	41.4	41.8
front shoulder to waist	39.8	40.2	40.6	41	41.4	41.8
armscye depth	19.8	20.2	20.6	21	21.4	21.8
waist to knee	57	57.5	58	58.5	59	59.5
waist to hip	19.7	20	20.3	20.6	20.9	21.2
waist to floor	101	102	103	104	105	106
body rise	25.9	26.6	27.3	28	28.7	29.4
sleeve length	57	57.5	58	58.5	59	59.5
sleeve length (jersey)	53	53.5	54	54.5	55	55.5

### XS, S, M, L, XL – 6cm increments

XS = extra small  
S = small  
M = medium  
L = large  
XL = extra large

Size symbol	XS 6	S 8–10	M 12	L 14–16	XL 18
bust	76	82	88	94	100
waist	56	62	68	74	80
<b>low</b> waist (5cm below natural waist)	66	72	78	84	86
hips	82	88	94	100	106
back width	31.4	32.9	34.4	35.9	37.4
chest	28.8	30.6	32.4	34.2	36
shoulder	11.4	11.8	12.2	12.6	13
neck size	34	35.5	37	38.5	40
dart	5	6	7	8	9
top arm	25.5	27	28.5	30	31.5
wrist	14.6	15.3	16	16.7	17.4
ankle	22.6	23.3	24	24.7	25.4
high ankle	19.6	20.3	21	21.7	22.4
nape to waist	39.8	40.4	41	41.6	42.2
front shoulder to waist	39.8	40.4	41	41.6	42.2
armscye depth	19.8	20.4	21	21.6	22.2
waist to knee	57.1	57.8	58.5	59.2	59.9
waist to hip	19.8	20.2	20.6	21	21.4
waist to floor	101	102.5	104	105.5	107
body rise	26	27	28	29	30
sleeve length	57.1	57.8	58.5	59.2	59.9
sleeve length (jersey)	53.1	53.8	54.5	55.2	56.9

## Standard body measurements – women’s sizing

This size chart, constructed for women’s standard sizing, differs from the size chart on page 10. It is based on 4cm and 6cm bust increments between the size codes, and is compliant with the body measurement charts given in the standard BS EN 13402-3. The size chart, particularly the *new size coding*, reflects the larger average size of mature women today. It also reflects the shape of the mature figure; with increases in the waist, hips, and the front shoulder to waist measurements.

Despite the variations in body sizes, the general trend is for body size to increase with height. See the special table below for short or tall women.

### 4cm and 6cm increments

Women of medium height, 160–172 cm (5 ft 3 in–5 ft 7½ in)										
Size code	6	8	10	12	14	16	18	20	22	24
bust	80	84	88	92	96	100	104	110	116	122
waist	64	68	72	76	80	84	88	94	100	106
low waist (5cm below natural waist)	74	78	82	86	90	94	98	104	110	116
hips	88	92	96	100	104	108	112	118	124	132
back width	32.4	33.4	34.4	35.4	36.4	37.4	38.4	39.8	41.2	42.6
chest	30	31.2	32.4	33.6	34.8	36	37.2	39	40.8	42.6
shoulder	11.75	12	12.25	12.5	12.75	13	13.25	13.6	13.9	14.2
neck size	35	36	37	38	39	40	41	42	43	44
dart	5.8	6.4	7	7.6	8.2	8.8	9.4	10	10.6	11.2
top arm	26	27.2	28.4	29.6	30.8	32	33.2	35	36.8	38.6
wrist	15	15.5	16	16.5	17	17.5	18	18.7	19.4	20.1
ankle	23	23.5	24	24.5	25	25.5	26	26.7	27.4	28.1
high ankle	20	20.5	21	21.5	22	22.5	23	23.7	24.4	25.1
nape to waist	40.2	40.6	41	41.4	41.8	42.2	42.6	43	43.4	43.8
front shoulder to waist	40.2	40.6	41	41.4	42.3	43.2	44.1	45	45.9	46.8
armscye depth	20.2	20.6	21	21.4	21.8	22.2	22.6	23.2	23.8	24.4
waist to knee	57.5	58	58.5	59	59.5	60	60.5	61	61.5	62
waist to hip	20	20.3	20.6	20.9	21.2	21.5	21.8	22.1	22.4	22.7
waist to floor	102	103	104	105	106	107	108	109	110	111
body rise	26.6	27.3	28	28.7	29.4	30.1	30.8	31.8	32.8	33.8
sleeve length	57.5	58	58.5	59	59.5	60	60.25	60.5	60.75	61
sleeve length (jersey)	53.5	54	54.5	55	55.5	56	56.25	56.5	56.75	57
Extra measurements (garments)										
cuff size shirts	21	21	21.5	21.5	22	22.5	23	23.5	24	24.5
cuff size, two-piece sleeve	13.25	13.5	13.75	14	14.25	14.5	14.75	15	15.25	15.5
trouser bottom width	21	21.5	22	22.5	23	23.5	24	24.5	25	25.5
jeans bottom width	18.5	18.5	19	19	19.5	19.5	20	20	21	21

### Tall and short women

Size charts for tall or short women have each of the following vertical measurements adjusted as shown in the size chart.

	Short women (cm) (152–160 cm (5 ft–5 ft 3 in))	Tall women (cm) (172–180 cm (5 ft 7½ in–5 ft 10½ in))
nape to waist	–2	+2
scye depth	–0.8	+0.8
sleeve length	–2.5	+2.5
waist to knee	–3	+3
waist to floor	–5	+5
body rise	–1	+1

## Standard body measurements – XS S M L XL

This type of chart is used mainly for leisure wear and particularly for garments in large retail stores and mail order catalogues. This size chart for mature women, particularly the *new size coding*, reflects the larger average size of women today. The medium size **M** is set at 12-14 (92-96cm) cm.

The size chart has 8cm grades between the codes **S-L** and 12cm grades between codes **L-XXL**.

**Note 1:** A large number of garments, made in these sizes, are made in jersey fabric; therefore, the front shoulder to waist measurement remains the same.

**Note 2:** High Street stores, aimed at the younger fashionable market, generally use a size 12 (set at 88cm) as their medium size (see page 12).

**XS** = extra small  
**S** = small  
**M** = medium  
**L** = large  
**XL** = extra large  
**XXL** = extra-extra large

Women of medium height 160–172cm (5ft 3in–5ft 7½in)						
Size symbol	XS	S	M	L	XL	XXL
Bust (control meas. to fit)	74–80	82–88	92–96	98–104	106–116	118–128
Approx. UK size codes	6–8 (half grade)	8–10	12–14	16–18	20–22	24–26
bust (meas. for drafting)	80	88	96	104	116	128
waist	64	72	80	88	100	112
low waist (5cm below natural waist)	74	82	90	98	110	122
hips	88	96	104	112	124	136
back width	32.4	34.4	36.4	38.4	41.2	44
chest	30	32.4	34.8	37.2	40.8	44.4
shoulder	11.8	12.3	12.8	13.3	13.8	14.3
neck size	35	37	39	41	43	45
dart	5.8	7	8.2	9.4	10.6	11.8
top arm	26	28.4	30.8	33.2	36.8	40.4
wrist	15	16	17	18	19.4	20.8
ankle	23	24	25	26	27.4	28.8
high ankle	20	21	22	23	24.4	25.8
nape to waist	40.2	41	41.8	42.6	43.4	44.2
front shoulder to waist	40.2	41	41.8	42.6	43.4	44.2
armscye depth	20.2	21	21.8	22.6	23.6	24.6
waist to knee	57.5	58.5	59.5	60.5	61.5	62.5
waist to hip	20	20.6	21.2	21.8	22.4	23
waist to floor	102	104	106	108	110	111
body rise	26.6	28	29.4	30.8	32.8	34.8
sleeve length	57.4	58.4	59.4	60.4	61	61.6
sleeve length (jersey)	53.4	54.4	55.4	56.4	57	57.6

## Constructing block patterns

### Block patterns

A block pattern is a foundation pattern constructed to fit an average figure. The average measurements of women are obtained by clothing manufacturers from sizing surveys.

The designer uses a foundation pattern (block) as a basis for making the pattern for a design. They may introduce style lines, tucks, gathers, pleats or drapes but still the basic fit of the pattern will conform to the block used. The finished pattern is made up into a calico toile to check the proportions and shape. The design is then cut out in fabric and made up. This is termed a sample. The size of the sample will depend on the niche market of the company. Manufacturers of high fashion garments will use a smaller size than the companies that cater for the general market. If buyers accept the design and orders are received, the pattern is then graded into the sizes required.

### Block patterns – general information

Instructions are given for a wide range of basic garments. The blocks include the basic amount of ease required for the function of the block; for example, a dress block requires less ease than a jacket block. Some blocks offer a further choice of ease; for example, the overgarment block can be drafted to be close fitting for a formal coat or to be an easier fitting coat. It is important that the correct block is chosen for the design; this not only saves time during adaptation but can affect the final shape. For example, the close fitting bodice block has a wide dart to produce shaping for the bust, this shaping is too acute for many easy fitting designs so the easy fitting block would provide a better base.

**Special note** The blocks should be drafted in full scale so that students understand block construction and become aware of body proportions.

### Intermediate blocks

Some manufacturers construct intermediate blocks; these are basic shapes that are in use continually, for example the kimono block, the 'A' line skirt block or a particular shape on which a range of designs has been based. The latter is often developed for a particular fashion shape; this type of 'fashion block' may only be used for one season. As manufacturers change to computer grading systems and to computer-aided design, intermediate blocks will be used increasingly. Their data can be stored and recalled for rapid adaptation and grading, thus improving efficiency.

### Block patterns – individual figures

The basic blocks can be drafted to fit individual figures by using personal measurements instead of the standard ones listed in the size chart. Methods of taking personal measurements and alterations for difficult figures are included in Chapter 15.

### Seam allowances

There is no seam allowance included in the blocks. These are added after the pattern is constructed. See the section on seam allowances on page 19.

### Types of blocks available in the book

#### Blocks for 'form' cutting

- (1) The basic skirt block (natural waist) (page 24)
- (2) The production skirt block (**low** waist) (page 25)
- (3) The basic trouser block (natural waist) (page 44)
- (4) The production trouser block (**low** waist) (page 46)
- (5) The very close fitting trouser/jeans block (**low** waist) (page 54)
- (6) The close fitting bodice block (page 62)
- (7) The easy fitting bodice block (page 64)
- (8) The tailored jacket blocks – close or easy fitting (page 66)
- (9) The classic coat blocks – close or easy fitting (page 68)
- (10) The one-piece sleeve block. The block can be constructed for all the above blocks (page 70)
- (11) The two-piece sleeve block. The block can be constructed for all above blocks (page 72)
- (12) The shaped kimono blocks (page 74 and 75)
- (13) Block modification for sleeveless and waist shaping (pages 76 and 77)
- (14) Dress, jacket, coat blocks – waist adaptations (pages 78–80)
- (15) Lingerie and body fitting dress blocks (page 81)

#### Blocks for 'flat' cutting

- (1) The easy fitting trouser block (page 166)
- (2) The simple trouser block (page 168)
- (3) The simple and very simple skirt blocks (page 168)
- (4) The basic shirt block (page 176)
- (5) The basic flat overgarment blocks (page 178)
- (6) The flat kimono block (page 178)
- (7) A range of blocks for basic and easy fitting casual and jersey wear (pages 186)
- (8) A range of knitwear blocks (page 194)
- (9) A range of close fitting (body shape) blocks for stretch fabrics (page 200)

