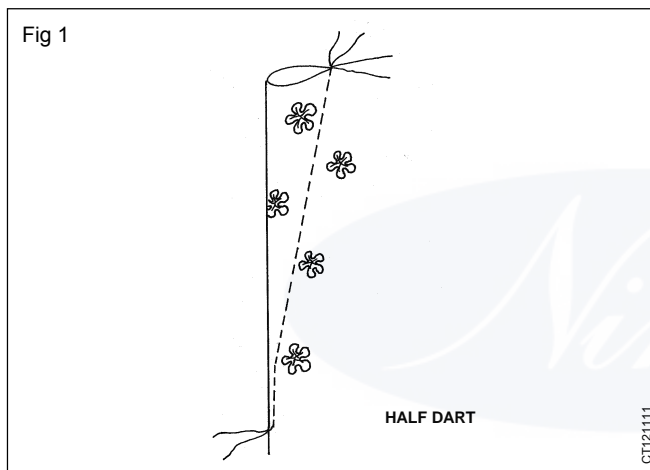


Darts

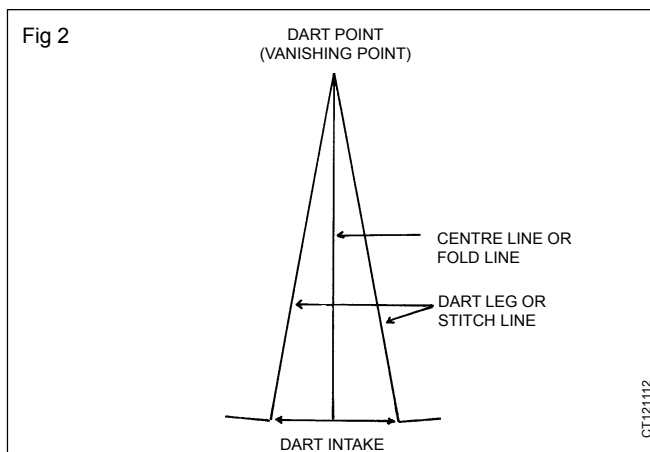
- Objectives:** At the end of this lesson you shall be able to
- name the types of darts and explain their constructional features
 - explain important construction techniques
 - state the application of tracing wheel.

Darts are one of the most basic structural elements in dressmaking. Darts are necessary because the body is not straight and flat but curved. A dart is used to shape a garment around the contours of the body and to allow freedom of movement, comfort to the wearer and also to make the garment look attractive. Darts are used mainly on women's dresses to allow fullness at the bust, hips, shoulders and elbows.

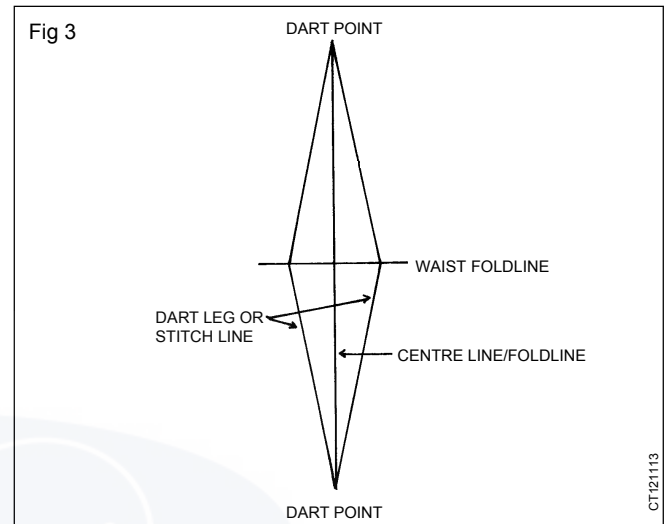
Standard dart (half dart): It is triangular in shape, wide at one end and pointed at the other. (Fig 1)



The pointed side should always be directed to the fullest part of the body. Tacking and stitching should start from the wide end towards the dart point. The wide base of a dart takes in fabric fullness, so that a garment fits the narrower parts of the body. The space inside the triangle is called intake which will appear on the wrong side of the garment. The dart stitching lines are matched, then stitched together. These stitching lines can be straight or gently curved for a close fit around the shape of the body. (Fig 2)



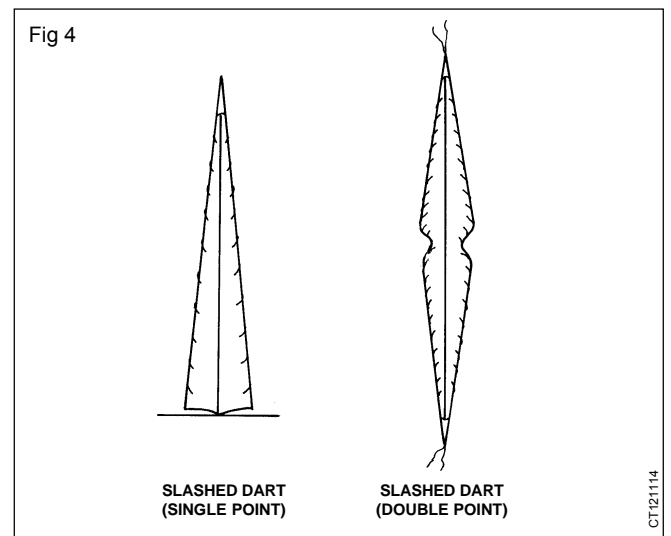
Double pointed darts (full darts): These are wide in the middle and pointed at both ends. (Fig 3) They are used at waist line of one-piece dresses.



After stitching, vertical darts are pressed towards centre front or centre back, and horizontal darts are pressed downwards.

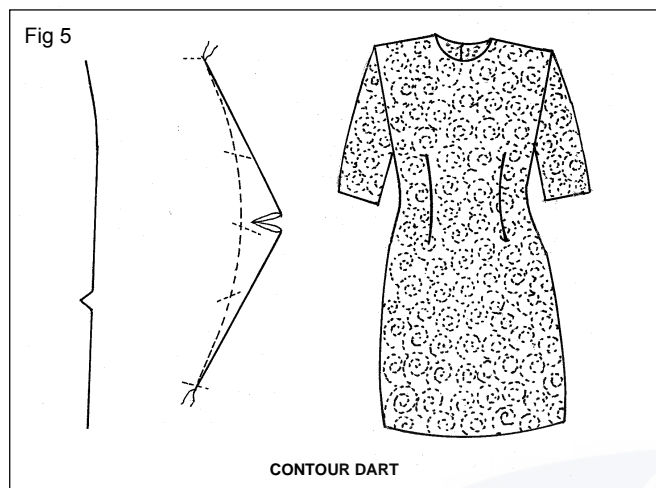
In general, it is better to set two small darts than one large dart.

A very deep and bulky dart intake is slashed and pressed open, the edges are overcasted or pinked. These darts are called **slashed darts**. (Fig 4)



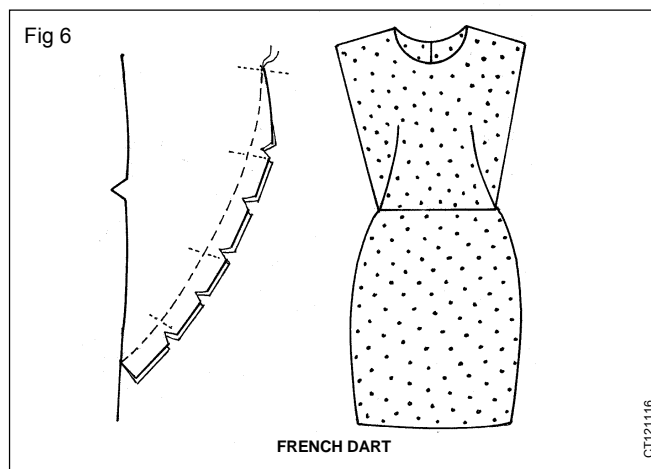
Well constructed darts appear on the right side as a seam. The seam should not bulge but taper gradually to point. Darts set better, if pressed over a round pressing pad on the wrong side.

The **contour dart** (variation of full dart) is used for semi-fitted and fitted styles of garments which don't have a waist seam. These darts have two pointed ends, one providing fullness at the bust, the other fullness at the hip. The wide central part of the dart shapes the fabric at the waist. Clipping of intake is done in the middle of the dart; it will relieve strain at the waist and other curved sections and allow the dart to lie smooth. (Fig 5)

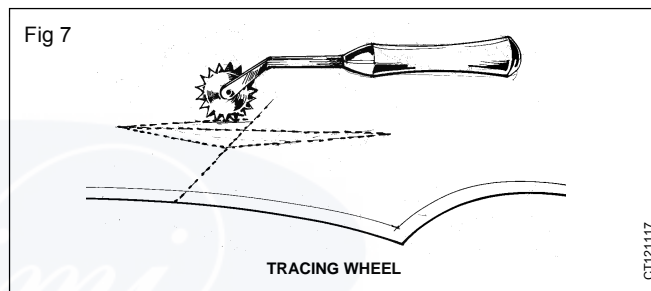


The **French dart** (variation of half dart) gives a semi-fitted shape. It combines underarm bust dart and waist dart into one long dart running from the bust down at an angle towards the side seam. This dart is cut open on its center line before sewing so as to match the stitching lines. (Fig 6)

Before stitching, the darts have to be transferred from pattern to the fabric. Depending on the material two methods can be applied: tailor marks will be used on silk, polyester etc. and loosely woven material. On cotton marking with a **tracing wheel** is a fast method.



The tracing wheel is a pinned metal tool which is used to transfer pattern marks or construction lines on the lower layer of fabric or paper. (Fig 7)



Pleats

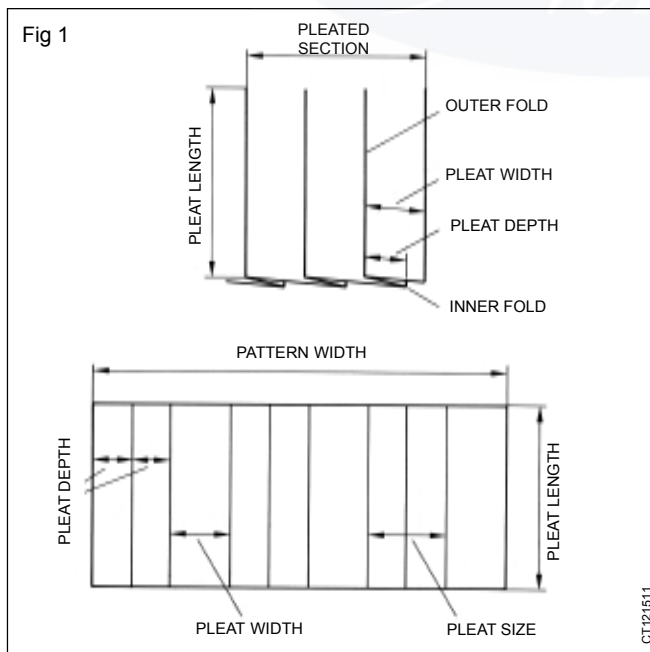
Objectives: At the end of this lesson you shall be able to

- explain the basic construction features of pleats using the technical terms related to pleats
- explain the difference between knife pleats, box pleats and inverted pleats.

Pleats are folds of fabric that are made to give decorative flare and fullness to a garment. They are commonly used on skirts and dresses, but also on sleeves or other components of a garment.

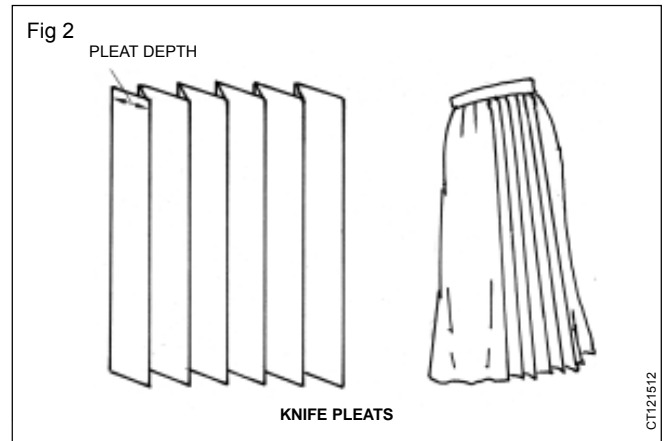
Construction features of pleats: Pleats are folded in vertical direction.

- Each pleat has an inner and outer fold. The outer fold line is placed on a placement line.
- The distance between inner and outer fold is called pleat depth.
- The pleat size consists of double the pleat depth.
- The distance between two neighboring outer folds is the pleat width (gap between the pleats).
- The width of material before pleating is called the pattern width.
- After pleating it is called the pleated section. The pleated section does not consider allowances for plackets etc. (Fig 1)



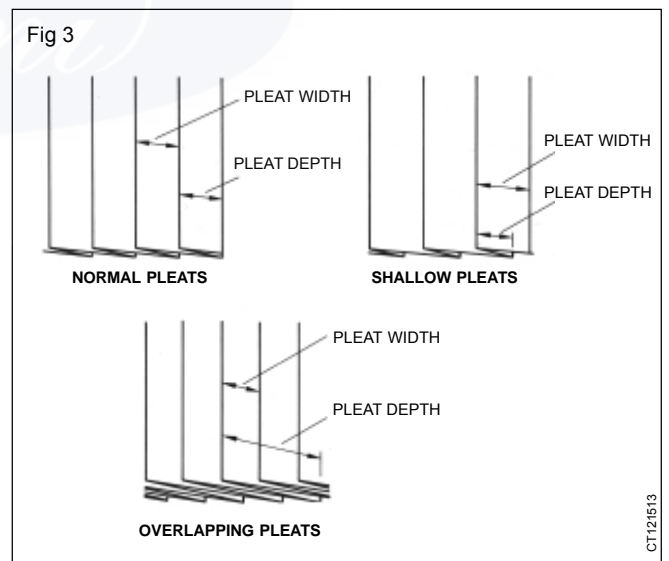
There are three **basic types of pleats**:

Knife pleats are the most common form of pleats. The outer foldlines are all placed in one direction. (Fig 2)

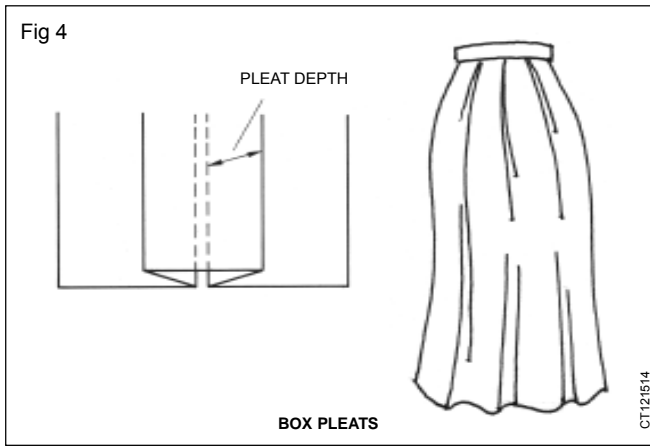


While setting knife pleats there are three possible proportions among pleat depth and pleat width:

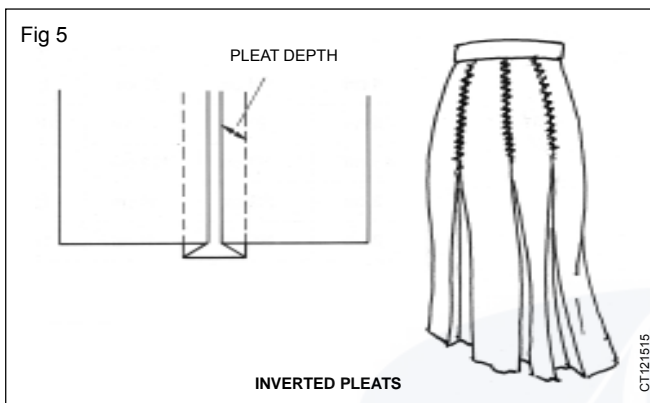
- pleat depth = pleat width g normal pleats
- pleat depth < pleat width g shallow pleats
- pleat depth > pleat width g overlapping pleats (Fig 3)



Box pleats are made by two single pleats in opposite direction. A full box pleat is folded under from two sides, so that the inner folds meet. It has two fold lines and two placement lines. (Fig 4)



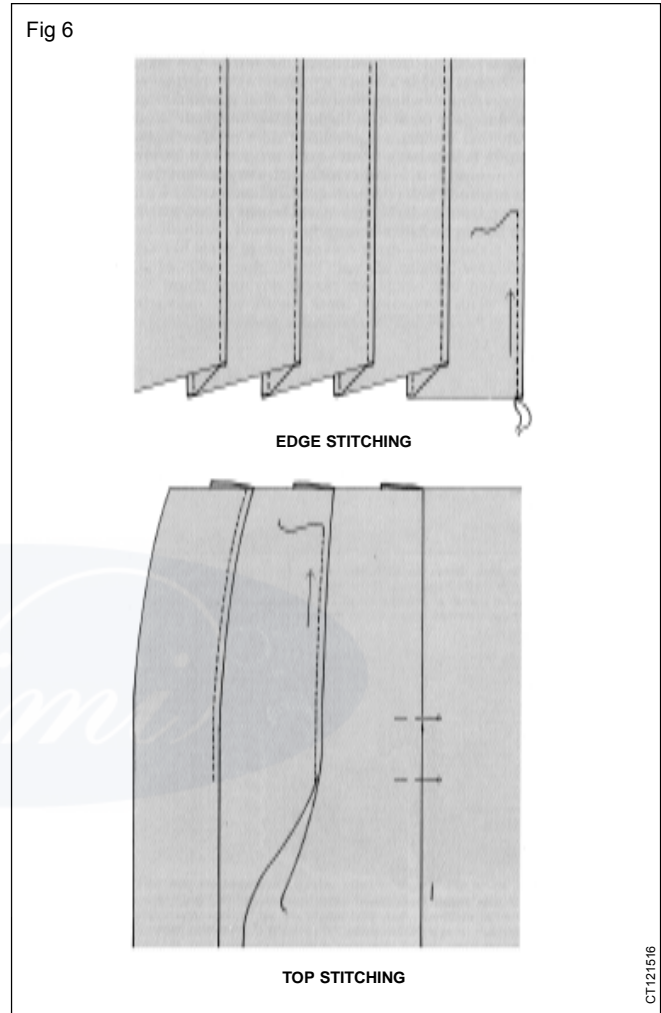
Inverted pleats are also made by two single pleats. They have two fold lines and a single common placement line. The two outer folds in the center of the pleat meet on right side. (Fig 5)



Pleats can be pressed crisply or can be left as unpressed to hang as soft folds. For pressed pleats, garment fabrics that crease easily are the most suitable. Pressing should be done with a pressing cloth. If pleats shall be sharp, use steam or damp cloth to set the creases, then ensure that the pleats dry thoroughly before moving them. During construction of pleats they are pressed before basting stitches are removed.

To hold the pleats in position they can either be edge stitched or topstitched from the waist towards the hip. (Fig 6)

If pleats are formed on a checked fabric it must be taken care that repeats of check are consistent and that folds have appropriate depth to hang satisfactorily (not too deep and not too shallow). Pleats on checked fabric can be set without drawing construction lines, since the lengthwise check lines can be used as such.



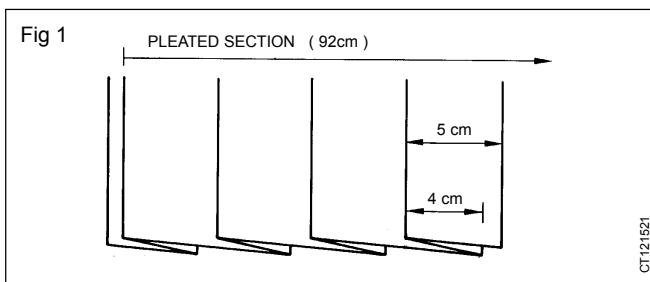
Calculation: Material requirement for pleats

Objectives: At the end of this lesson you shall be able to

- calculate the material requirements for knife pleats, box pleat and inverted pleats.

Knife pleats

Example 1: A pleated section should be of 92 cm width. The pleat depth should be 4 cm and the pleat width should be 5 cm.



- How many shallow pleats should be made?
- What should be the pattern width of the material strip for the pleated section?
- How much material (=length in cm) is required to make the pleated section, if the fabric is of width 90 cm, the length of pleat is 15 cm and 2 cm seam allowance per strip are necessary for each seam?

Solution

- $92 \text{ cm} : 5 \text{ cm} = 18.4$ (pleats) g 18 pleats
 $92 \text{ cm} : 18 = 5.11\dots = 5.1 \text{ cm}$ (corrected pleat width)

Explanation: If the pleated section is divided by the pleat width, it gives the number of pleats.

If the number of pleats so got is not a whole number, it must be rounded off (can be rounded off to the next higher or to the next lower number, at free will). But then - as seen above - the pleat width as originally contemplated, has to be corrected by a fresh calculation.

- b $4 \text{ cm} \times 2 = 8 \text{ cm}$ (pleat size = material required per pleat)
 $8 \text{ cm} \times 18 = 144 \text{ cm}$ (material required for all pleats size)
 $144 \text{ cm} + 92 \text{ cm} = 236 \text{ cm} = 2.36 \text{ m}$ (material required for all pleats size + width of pleated section)

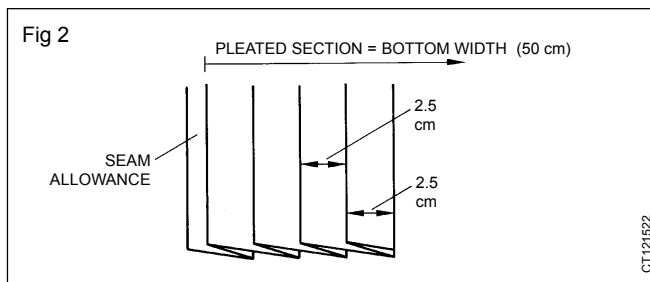
Explanation: The material required for each pleat is (irrespective of the dimensions) twice the pleat depth. To the material required for all the pleats is added the width of pleated section (= sum of all the pleat widths); (Ref. to Fig 3, Lesson 1)

The general rule: pattern width for pleated components = $2 \times \text{pleat depth} \times \text{number of pleats} + \text{width of pleated section}$

- c $2.34 \text{ m} : (0.90 \text{ m} - 0.02 \text{ m}) = 2.6\dots$ g 3 strips
 $15 \text{ cm} \times 3 = 45 \text{ cm}$

Explanation: If the pattern width is divided by the width of the material (less the seam allowances), one gets the number of material strips required. The number of strips, if fractional, is always rounded off to the next higher integer, as there can only be a whole number of strips and the material must suffice. In this and in the similar exercises that follow, the pleat lengths include all necessary material allowances.

Example 2: A baby frock is to have a pleat-set at the bottom. The width of the bottom circumference is 50 cm. The knife pleats (normal pleats) should have a depth of 2.5 cm. The seam allowance at the pleated section amounts to 1 cm each on the left and on the right. (Fig 2)



- a How many normal pleats should be made?
 b What should be the length of the strip of material for the pleated section?

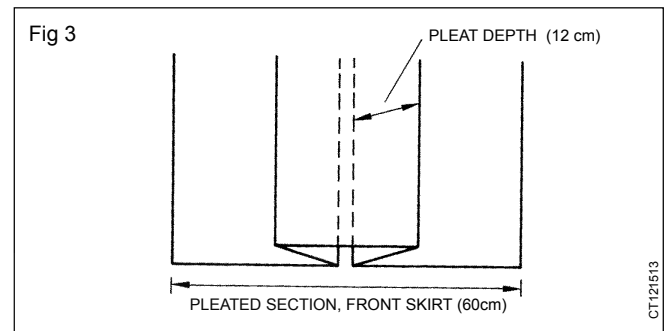
Solution

- a $50 \text{ cm} : 2.5 \text{ cm} = 20$ (pleats)
 b $50 \text{ cm} \times 3 = 150 \text{ cm}$ (pattern width)
 $150 \text{ cm} + 2 \text{ cm} = 152 \text{ cm} = 1.52 \text{ m}$

Explanation: Exercise (b) can be solved in accordance with the general rule derived from Example 1. In the case of normal knife pleats, however, there is a simpler procedure: The pattern width is always three times the pleated width, i.e. it is independent of pleat depth and pleat width (because of the triple layer of the material per pleat).

Box pleats: A box pleat consists of two normal knife pleats whose inner folds lie against each other. The pleat width is twice the pleat depth.

Example: A skirt has a box-pleat at the front. The pleated width of the skirt front at the hem should be 60 cm (when the pleat is flat). The pleat depth is to be 12 cm. What should be the pattern width of the front part of the skirt at the bottom (without seam allowance)? (Fig 3)

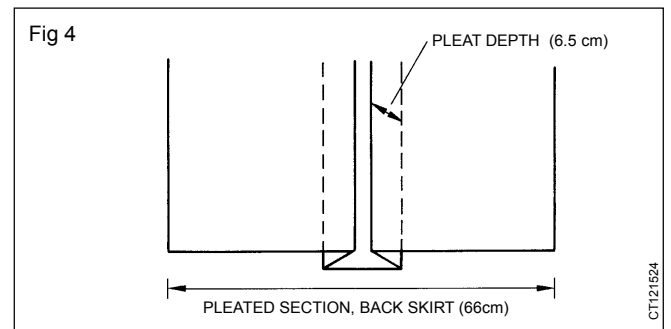


Solution

- $12 \text{ cm} \times 2 = 24 \text{ cm}$
 $24 \text{ cm} \times 2 = 48 \text{ cm}$
 $48 \text{ cm} + 60 \text{ cm} = 108 \text{ cm} = 1.08 \text{ m}$
 Pattern width should be 1.08 m.

Inverted pleats: An inverted pleat consists of two normal knife pleats whose outer folds lie against each other. The pleat width is twice as much as the pleat depth.

Example: For comfort, a dress is provided with an inverted pleat at the center back seam. The pleat depth should be 6.5 cm. The pleated section of the back portion at the bottom should be 66 cm (when the pleat is flat). What should be the pattern width of the back portion (without considering allowances)? (Fig 4)



Solution

$$6.5 \text{ cm} \times 2 = 13 \text{ cm}$$

$$13 \text{ cm} \times 2 = 26 \text{ cm}$$

$$26 \text{ cm} + 66 \text{ cm} = 92 \text{ cm}$$

The pattern width should be 92 cm.

Exercises

- Prepare a paper model of
 - normal pleats (pleat depth 2 cm).
 - shallow pleats (pleat depth 2 cm/pleat width 3 cm)
 - overlapping pleats (pleat depth 4 cm/pleat width 1 cm)
- Calculate the missing values (note: while calculating pleat depth, round off the final result to the next lower integer):

	a	b	c
Pleat depth	3 cm	4.2 cm	4 cm
Pleat width	4 cm	-	4 cm
No. of pleats	?	12	?
Pleated section	80 cm	62 cm	48 cm
Pattern width	?	?	?

- Calculate the quantity of material (fabric) required for pleated sections ("fabric allowance" in the last row refers to the requirement for seam allowance to join the strips)

	a	b	c	d	e
Pleat Depth	3	4.5	3.5	4.2	2.5
Pleat width	3	5	3	4	4
Pleated section	168	260	144	172.2	124
Pleat length	22	12	10	48	18.5
Width of material	105	90	122	148	130
Seam allowance per strip	1.5	2	3	2.5	2

- A pleated section of normal pleats has to be made. The pleated section should be 189 cm and the pleat length 15 cm. The material available has a width of 114 cm. A seam allowance of 2.5 cm per strip is required to join the strips. What is the total material requirement?
- A pleated section should have a width of 15.5 cm. 5 normal pleats are to be set.
 - Calculate the pleat depth.
 - What should be the pattern width of the material strip for the pleated section?
- A pattern width of 144.5 cm is available to make a pleated section. What can be the maximum width of the pleated section, if the pleat width should be 3.5 cm and the pleat depth should be 2.5 cm?
- A strip of material of 120 cm width is made into 8 normal pleats with a pleat depth of 4 cm. What will be the width of the pleated section?
- A pleated section consisting of normal pleats has a width of 95 cm, the pleat width being 5 cm, what should be the pattern width (ignoring the seam allowances)?