

Costing of Different Components of Garments

in Costing

The survival of any business depends upon how profitable it is. So, the need to understand the cost of a product, primarily, is to cover the expenses incurred by business. There are always two perspectives on the cost; one is viewed from the customer's perspective and the other from the supplier. The supplier's perspective is often termed as the 'cost of a garment', which means how much is spent to manufacture a **garment**. When a garment is manufactured in an industry it is viewed as an asset, or an inventory; and when the garment is sold, the cost of making the garment is classified as a cost of goods sold expense. If the revenue generated is more than the expenses incurred, the company is said to be profitable; otherwise the company shows losses on their balance sheet.



Fig: Garment raw material costing

From the customer's perspective, the cost of the garment, which is often termed the 'price of a garment', is the price paid by the customer to own a garment, which includes the mark-up and margin. The received money is distributed upstream to the supply chain accordingly. The supplier is always willing to reduce the cost of production operations and the whole supply chain in order to impact the profitability positively.

So, practically the price of a garment is always higher than the cost to make the garment, for the sake of generating profit. The price of a garment is decided based on what revenue a company

wants to generate so that after paying expenses a company can earn a reasonable profit. Therefore, it is an elementary requirement to know the cost and factors impacting cost by the manufacturer in order to set a price for the finished garment.

You can also follow: [Methods and Stages of Garments Costing](#)

There are various drivers to decide the price of a garment. If the product is to be sold directly from the manufacturer without any intermediary, then the price may be kept lower; but if an intermediary is involved, the price needs to be set higher because the intermediary will take its profit share as well. In the garment industry, it is not pragmatic to distribute the garments straight from the manufacturer's hands unless it is totally an online business. Even in online business there has to be distribution cost involved, which acts as an expense; an example may be as seen on screen (ASOS). In the garment industry, the driver of the price is not the manufacturer but the retailer, so acceptance of the pricing decision will depend on the elementary costing done by the manufacturer.

Components of Cost of Garment:

Normally, the costing is prepared by considering the raw material cost, market demand, operating cost of the industry and forecasted profit of the firm and also considering the expectations of the buyer. Material cost is the major cost component of a [apparel manufacturing](#) costs. A perfect cost calculation method will give you better projection of garment cost for a style.

The various elements in garment costing are:

- Fabric
- Trims and accessories
- CMT (cut, make and trim) charges
- Embroidery, appliqué, printing, washing and other value added processes
- [Garment testing](#)
- Logistics and transportation cost
- Profit of the industry

Fabric:

Fabric, the raw material for garment manufacturing, itself accounts for 65%– 75% of the garment cost, hence it is the most vital parameter in garment costing. In many circumstances, analysing

the quantity of fabric as well as quality of it in the garment provides a better indication of cost of production. The type of fabric and fibre content of the same, value added finishes applied on the fabric and fabric GSM determine the cost of the fabric.

Influencing parameters for fabric cost:

Unit of Measurement:

It is basically a number used as a basic criterion for evaluating the fabric cost. It is expressed in meters or yards in case of woven fabric and in kilograms (kg) for knitted fabrics.

Minimum order quantity:

It represents the minimum quantity of fabric that the fabric manufacturer could supply to the garment manufacturer. Minimum order quantity (MOQ) is based on the fabric type and construction and on capacity of the merchant. It plays a vital role while ordering the fabric because it directly influences garment cost. If the ordered quantity of fabric is less than the determined MOQ, then the merchant could claim higher price as compared to regular charges.

You can also follow: [Costing Procedure for Men's Basic T-shirts](#)

Order quantity:

The fabric cost could differ with the order quantity. The larger the order quantity, the more costly the fabric; fabric cost could be optimised up to a certain level. However, this relies on the fabric type and construction and capacity of the fabric manufacturer in addition to the intercession between supplier and fabric buyer.

Incoterm used:

When importing the fabric from another country, the merchandiser must deal with the supplier for transportation or shipment of the fabric based on incoterms, namely, EXW, FOB, CIF, DDP, etc. based on these, who can bear the transportation cost can be decided. Whatever type of incoterm used, all the cost should be claimed from the buyer. For instance, if the fabric is purchased under EXW incoterm, the merchandiser should add the cost of transportation in addition to the custom clearance charges and fabric cost while determining the cost of the garment. The fabric cost can be determined by

Fabric cost = Yarn Cost + Fabric manufacturing cost + Dyeing cost + Finishing cost

Cost calculations of fabric in garment:

For example, the fabric consumption of a knitted T-shirt can be determined as

$$\frac{(\text{Body length} + \text{Sleeve length} + \text{Allowance}) \times (\text{Chest} + \text{Allowance}) \times 2 \times \text{GSM}}{\text{Fabric Consumption (kgs)} = \frac{\text{-----}}{\text{-----} + \text{Wastage \%}} \times 10000$$

Similarly, for woven shirt fabric, the fabric consumption can be calculated as

$$\frac{(\text{Full length} + \text{Sleeve length} + \text{Allowance}) \times (\text{Chest} + \text{Allowance}) \times 2 \times \text{fabric width}}{\text{Fabric Consumption (meters)} = \frac{\text{-----}}{\text{-----} + \text{Wastage \%}} \times 39.37$$

These types of methods are used to estimate the fabric consumption at the sampling stage by the merchandiser. Normally, fabric wastage and the buffer value of 0.03%–0.08% in the fabric consumption will be included while calculating the fabric consumption.

Trims:

Trims comprise all materials other than fabric utilised in the garment such as sewing threads, zippers, buttons, elastics, labels, etc. Quality and quantity of trim and labour necessary to apply it on a garment depend on the cost of the garment. MOQ, quality of raw material utilized for making the trims and lead time are the parameters to be taken into account while calculating trim cost.

Thread:

After fabric, which is a main component, thread is another item that needs to be taken into

account for estimating the cost of garments. The consumption of sewing thread is determined by the industrial engineering (IE) department. It is based on the type of seam and stitch density. While purchasing the sewing thread, the operation breakdown for the particular style and total number of sewing machines necessary to complete the particular style of garment should also be considered. For the determination of thread consumption software is also available which could give the precise thread consumption. The sewing thread wastage of around 10%–15% should be considered while ordering it.

Labels:

Various kinds of labels are used in garments like the main label, content label and care label. The cost of it depends on its manufacturing process, for instance, based on the fibre content, printed labels, size of labels, colours etc.

Zippers:

The types of zippers, such as plastic zippers, moulded zippers, metallic zippers, invisible zippers etc. play a significant part in the cost of the zipper. The merchandiser must be aware of the various parameters of the zipper for negotiation and accurate costing. Minimum order of quantity is the parameter that influences the cost of the zipper.

Buttons:

Another kind of closure, buttons, could be made up of different types such as nylon, plastic, wood, shell, or metal. Each kind of button has its own minimum order of quantity decided by the manufacturer of it. Buttons are purchased on a bulk basis with the lignes specified.

1gross = 1packet = 144 buttons = 12dozens

Polybags:

The cost of polybags is mainly based on thickness, dimension and raw material and is procured in terms of number of pieces. The cost of polybags is also vital because it makes a difference while considering the entire order quantity.

Cartons:

The cost of cartons varies based on the material used and their dimensions. The cartons are procured based on their dimensions, number of plies and GSM of the paper that is used to make the carton box. In general, 3, 7 and 9 plies are utilised in a carton box.

Hand Tags:

These are normally used as packing material and the cost of it depends on the raw material used, printing over it and the minimum order quantity.

Shanks and rivets:

Generally these types of trims are made up of metal and the cost of these trims is dependent on MOQ and the raw material used to make them.

Hangers:

Hangers are generally made up of hard plastics, seldom with wood material. The hanger cost depends on the raw material used to make it, size of the hanger, colour of the hanger and any printing on it.

Tapes and velcro:

Generally, tapes are purchased based on the width, hence, the width of the tape as well as MOQ influences the cost of the tape.

Other charges:

Trims charges are normally determined based on the way of transportation, for air transportation the cost will increase by 15%–25% and for transportation through sea, it will increase by 10%–15%. If it is domestic, then the local taxes are added. Supplementary charges involved in the garment costing are:

- Rejection and wastage charges -----2%–5%
- Inspection charges -----1%–2%
- Buying house commission -----1%–1.5%
- Transportation charges -----\$1–2/piece
- Profit margin -----10%–15%

Cut-Make-Trim (CMT) cost of garment:

The cost of making completed 'in-house' is given by

$$\frac{\text{Total(cost/hour) x total hours required for a style}}{\text{Number of units produced}}$$

$$\text{1. Labour cost/min (@ 100\% efficiency)} = \frac{\text{Operator salary/month}}{\text{Available minutes in a month}}$$

$$\text{2. CM Cost} = \frac{\text{SAM of garment x Labour cost per minute}}{\text{Line Efficiency (\%)}}$$

Value Added Processes:

This denotes the cost of value added processes such as embroidery, printing and washing used to impart the type of finish the buyers need. Cost of these kinds of value added services varies depending on different styles.

Hence, by considering all these aspects, CMT charges can be determined by the following manner.

$$\begin{aligned} \text{1. Available capacity per month (in minutes)} &= 26 \text{ working days/month} \times 8 \text{ hours/day} \times 60 \\ &= 12,480 \text{ minutes} \end{aligned}$$

$$\begin{aligned} \text{2. Labour cost per minute (@100\% efficiency)} &= (\text{Salary of an operators/month}) / \text{Available} \\ &\text{capacity per month} \\ &= 10000 / 12480 \\ &= \text{Rs. } 0.8 \end{aligned}$$

$$\begin{aligned} \text{3. Sewing cost} &= (\text{Garment sewing SAM} \times \text{Labour cost/min}) / \text{Line efficiency (\%)} \\ &= (14 \times 0.80) / 55 \\ &= \text{Rs. } 20.36 \end{aligned}$$

4. Cutting cost = (SAM of cutting x Labour cost/min) / Cutting efficiency (%)
= 8 x 0.8/55
= Rs. 11.6

5. Trimming cost is considered as Rs. 3 as it depends upon how many operators are there for trimming.

Production cost of garment (CMT) = Sewing cost + cutting cost + trimming cost
= 20.36 + 11.6 + 3
= Rs. 34.96

References:

1. Apparel Manufacturing Technology by T. Karthik, P. Ganesan, and D. Gopalakrishnan
2. Garment Manufacturing Technology by Rajkishore Nayak and Rajiv Padhye

Raw Material Consumption Calculation in Apparel Industry

in Costing

Once, the order scheduling process is completed, the very next important job for the merchandiser is to estimate the average consumption of various raw materials for that particular style and also for the order quantity. Raw material cost is the major cost component of a apparel manufacturing costs. A correct cost calculation method will give you a better projection of garment cost for a style. Main raw materials are like fabric, labels, sewing thread, hang tags, trims etc.

In this process, merchandiser or responsible person need to calculate various consumption details like,

1. Weight of the yarn or fabric per garment (grams per square metre)
2. Size wise – Colour wise order quantity breakup identification
3. Yarn or fabric consumption per garment and for order quantity
4. Sewing thread consumption
5. Other raw materials consumption.

Based on the size of the industry, these consumptions for the bulk quantity may be sometimes calculated by the Industrial Engineering department or Production planning department. However, as a merchandiser, it is essential to him / her to know the methods, because, during the order acceptance stage, while pre-costing, he / she need to estimate the approximate consumption. But in the case of medium and small size industries, all these works were performed exclusively by the merchandiser. Since the consumption calculations are more important for a merchandiser in the order execution state.

Fabric and yarn weight calculations:

Fabric and yarn are the basic raw materials to produce any particular garments. Before going to bulk production, it is quite essential to know and test the GSM of the supplied fabric by the supplier. Fabric GSM can directly be got through GSM cutter or can be theoretically evaluated via some calculations.

GSM can find out both of woven and knit fabric.

The method of estimating the GSM of woven fabric is provided here:

$$\text{Warp weight} = \frac{\text{EPI} \times 39.384 \times 453.4 \times (\text{crimp} + 100)}{\text{Warp count} \times 0.914 \times 840 \times 100}$$

$$\text{Weft weight} = \frac{\text{PPI} \times 39.384 \times 453.4 \times (\text{crimp} + 100)}{\text{Weft count} \times 0.9140 \times 840 \times 100}$$

$$\text{GSM of woven fabric} = \text{Warp weight} + \text{Weft weight}$$

You may also like: [How to Find Out Woven Fabric GSM](#)

The method to calculate the GSM of knitted fabric is provided here:

$$0.59 \times \text{Length in m}$$

Count in Ne = -----

Weight in Grams

loop density x (39.384) x (39.384) x loop length in mm

Yarn length in m = -----

-

1000

0.59 x yarn length in m x (100 + shrinkage)

GSM = -----

Count (Ne) x 100

Size wise – Colour wise order quantity breakup identification:

In practical situations, while receiving the order the merchandiser sometimes will get the exact details of colour wise and size wise quantities but most of the time he will receive only the,

- Order quantity and
- Size and colour wise ratio or percentage

So, it is important for a merchandiser to know the calculation method for these quantity breakup.

Yarn or fabric consumption calculations:

The basic formula for the calculation of fabric consumption per garment is provided here,

Knitted fabric consumption,

{(length x width x number of components) + (length x width x number of components)} x

GSM

= -----

10,000 x 1000

Woven fabric consumption,

$$\frac{\{(length \times width \times number \ of \ components) + (length \times width \times number \ of \ components)\}}{Fabric \ width \times Unit \ conversion}$$

Here, to convert inch to metre use, 39.37 as conversion factor in case of woven fabric (1 inch = 0.0254 metre = 1/39.37)

To calculate the fabric consumption, the following details are necessary,

- Measurement details of the garment
- Fabric width in case of woven fabric
- Fabric GSM in case of knit fabric
- Shrinkage %
- Fabric description
- Style description of the garment
- In case of woven fabric, the total usable fabric width = Original width – selvedge
- This usable width only needs to be used for the calculations
- In case of multiple fabric roll with different widths are used, consider the lowest or least width for the calculation, if they are laid together during cutting
- All the allowances should be considered before making consumption calculations.

Sewing threads – consumption calculation:

Several factors determine the extent of thread consumption in any sewn product, such as stitch type, seam type, material thickness; number of layers, construction and SPI (stitches per inch). However, these factors are not constant with the different style preferences. Hence, thread consumption is never standard for sewn product categories such as shirts, trousers and footwear.

You may also like: [Sewing Thread Consumption Calculation](#)

There are two methods generally used to calculate the amount of thread in a seam and hence the thread consumption in the sewn product:

1. By measuring the actual amount of thread consumed
2. By calculation using thread consumption ratios

Other raw material consumptions:

The other raw material represents the materials used during garment preparation either directly on the garment or along with the garments. Generally the following raw materials used in the garment manufacturing, for which the merchandiser needs to calculate the total requirement for a single garment or for an order.

1. Buttons
2. Labels
3. Inter lining materials like nonwoven, canvas, etc.
4. Hooks
5. Zippers
6. Tapes
7. Elastics
8. Tags, Poly bags, stickers and other packing materials
9. Cartoon boxes, etc.

For all this raw materials, the merchandiser will receive informations from buyer regarding the quality and requirement specification. With the sample he or she can understand how many numbers of particular (buttons, labels, hooks, zippers, etc.) raw materials or how many centimetres (length) of (Twill tape, elastics, etc.) particular product is required per garment and so he or she can estimate the total numbers for the order quantity.

In this case, the important note is, the merchandiser should aware of the company efficiency either from previous history or from similar order situations in past. Based on that merchandiser should include certain amount of waste percentage to the particular raw material. However, based on the cost of the raw material, the merchandiser can seek for special attention on that particular raw material usage / attachment area in the production floor, where he / she cannot offer extra percentage of quantity.

S. No.	Materials	UoM
1	Label, Zipper, Hang Tag, Carton box, Rivets, Hanger	Per unit
2	Laces, Elastics	In meters (50 meter or 100 meter roll)
3	Tape, Velcro	In meters (roll) or m/Kg
4	Buttons	Gross (12 Dozens – 144 units)
5	Shanks	Gross
6	Polybag	Unit (Based on GSM)
7	Sewing thread	Cone (2000 or 5000 meter)

Table: Raw material and their unit of measurements

An another important information which merchandiser needs to know regarding this kind of other raw materials is the “Unit of Measurement” (UoM). This one the influencing factor for merchandiser during sourcing of material. He or she should be aware of the individual items correct UoM, this will help merchandiser in cost control and also avoid usage waste. Above Table represents the different raw materials and their unit of measurements.

References:

1. Apparel Merchandising by R. Rathinamoorthy and R. Surjit
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3. <https://textilecalculation.blogspot.com/2014/12/basic-information-for-consumption.html>