



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE

www.sathyabama.ac.in

SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF FASHION DESIGN

INTERNSHIP DOCUMENT 2022-2023

SUBMITTED BY

BALAKRISHNAN MEGA

REG.NO:40105004

BATCH: 2020-2023



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NAME: BALAKRISHNAN MEGA

REG.NO: 40105004

DEPARTMENT: FASHION DESIGN (B.Sc.)

MENTOR: K.S RAVI SIDHAARTH

DEPARTMENT OF FASHION DESIGN

INDUSTRY MENTOR: Mr. SENTHIL KUMAR



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DECLARATION

I BALAKRISHNAN MEGA hereby declare that this Internship Report (S105AINT) for 28days from 25TH May 2021 to 23RD June 2022 done by me under the guidance of Mrs. N. Gayathri is submitted in partial fulfillment of the requirements for the completion of Internship training session.

DATE: 21-10-2022

PLACE : CHENNAI

B. Megha

SIGNATURE OF CANDIDATE



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DEPARTMENT OF FASHION DESIGN
VIVA-VOCE EXAMINATION

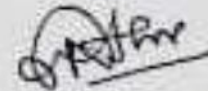
This to certify that the Internship Report (S105AINT) is the work of MEGHA BALAKRISHNAN who has undergone training in SCM GARMENTS Industry and has been monitored by the continuous assessment during May2022to June 2022.

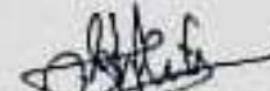

Mrs. S. KRITHIKA
Head of the Department
Head of the Department
Fashion Design
Sathyabama Institute of Science and Technology
Chennai-600 119.

21-10-2022

Submitted for Viva voce
Examination held on


N. G. (N. GAYATHRI)


Internal Examiner
(S. S. AVITHIRI)


External Examiner



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ACKNOWLEDGEMENT:

I am grateful to Sathyabama university for providing me an opportunity to do my internship work on SCM garments. I express my wholehearted thanks to my internship mentor, Mr. K.S. Ravi Sidhaarth course coordinator, Sathyabama Institute of Science and Technology, for assisting me with my internship work. Technology.

Through this report, I would like to thank numerous people in the industry whose consistent support and guidance have been very supportive in finishing my internship project. Especially to my industrial mentor. Mr. Senthil Kumar S has guided and supervised me.



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ABSTRACT:

Though critical and deep study, this report examines the type of production system that is used in the fashion apparel industry. It shows the analyse and comparison of production concerning cost, quality, and productivity. In this efficiency is the most important thing. The sewing system is depending upon efficiency and style.

This study is based on the complete operations of different fabrics. It also focusses on the positive and negative aspects the of production system. This company gives more importance to the import and export of fabrics.



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Ref: SHD/2022/05/25 /R10

25 May, 2022

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. **BALAKRISHNAN MEGA**, Register Number **40105004** is a Bonafide student of our Institution pursuing 2nd year **BACHELOR OF SCIENCE** in **FASHION DESIGN** during the academic year **2021-2022**. She will be completing the course in the year **2023**.

This certificate is issued for the purpose of Applying **INTERNSHIP**.

DEAN (STUDENT AFFAIRS)

Dr. G. SUNDARI, M.E., Ph.D.

DEAN (STUDENT AFFAIRS)

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Jeppiaar Nagar, Rajiv Gandhi Salai

Chennai - 600 119.



23.06.2022

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Miss.BALAKRISHNAN MEGA** Student of **B.Se-FASHION DESIGN**-in **SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY,CHENNAI** has done her Training in our Unit following **Production Process** only from **26.05.2022 to 23.06.2022.**

During the internship, she has closely worked as a part of the administration team and, we found that she is very regular, innovative, hardworking and quick learner.

We wish her all Success in future.

Best regards,

GM - HR



SCM Garments Pvt Limited

57, V.O.C. NAGAR (SOUTH), VALAYANKADU, TIRUPUR - 641 603, INDIA.
PH: 91 - 421 - 4319888, Fax: 91- 421 - 2248889 , CIN No: U18101TZ2006PTC012698
E-Mail: scmcre@scmgroups.com Website : www.scmgarments.com

DAILY REPORT

DATE	DETAILS
MAY 26	Company visit (overview of a production unit)
MAY 27	SOP of company policies, types of machines.
MAY 28	Printing department
MAY 30	Tech pack checking department
MAY 31	IE department checking department
JUNE 1	Quality control department
JUNE 2	SOP department
JUNE 3	Acceptance quality level
JUNE 4	Measurement checking
JUNE 6	Button testing
JUNE 7	Tech pack and ordering processing
JUNE 8	Tech pack
JUNE 9	Accessories
JUNE 10	Accessories
JUNE 11	Label management machine maintenance
JUNE 13	Line production inspection
JUNE 14	Inspection
JUNE 15	AQL
JUNE 16	AQL
JUNE 17	Garment safety measures and laws
JUNE 18	Plan layout
JUNE 20	Sampling merchandising
JUNE 21	Sampling merchandising
JUNE 22	Pattern Making
JUNE 22	Marking pattern



SCM GARMENTS

SCM GARMENTS

COMPANY PROFILE:

SCM was established in 1989, SCM Garments Private Limited is the destination of the superlative that is knitted with bright quality and strong values. It is an export arm of The Chennai Silks (TCS), we exist to create experiences when passion and purpose come together. SCM group of companies is the biggest and most efficacious company.

FOUNDER

SCM Garments sets sight on an even more ambitious goal, remain inspired and guided by the story and philosophy of the founder Shri. A. Kulandaivel Mudaliar. It has adopted converting adversity into opportunity and making the impossible into possible by challenging conventional

MISSION, VISION, AND VALUE

MISSION

Dynamic production resources aligned with sustained work employee satisfaction.

VISION

Referent happy facility creating service excellence.

VALUE

Empowering employees by installing values of pride along with ownership toward a more vibrant company culture with suitable production practices to meet the evolving need of customers.

2.2 MILESTONE

1989- SCM garments was established with its foray into the textile domain.

1993- SCM set up its turnkey knitting unit.

2003- SCM established its textile spinners.

2005- SCM established its textile spinners.

2016- SCM established its textile spinners.

2017- SCM factory international production into Ethiopia.

GROUP

- SCM SPINNING MILLS
- SCM KNITTING MILLS
- SCM PROCESSING
- SCM GARMENTS

SISTERS CONCERN

- SCM Textile Spinners,
- The Chennai Silks,
- SCM Energy Divisions,
- The KTM Jewelry Private Limited,
- Aathava Garments India Private Limited,

3. PRODUCTS OFFERED

SCM Garments offers a variety of products like

- Kids wear,
- T- Shirts,
- Winter wears,
- Inner wears,
- Summer wears,
- Sportswear.

4. MAJOR CLIENTS:

- Decathlon, France
- Kiabi, France
- George/Asda, UK
- Tesco, UK
- Go Sports, France
- Hanes Brand, USA
- Sears/K-Mart, USA
- Polo Ralph Lauren, USA
- Toys 'R' us, USA
- Carrefour, France
- JD sports, UK
- Lindex, Sweden
- Dunnes, Ireland
- Morrisons, UK

PROGRESSIVE BUNDLE SYSTEM

PBS is the most common and traditional method of production in garment industry. According to American Apparel Manufacturers Association (AAMA) Technical Advisory Committee (1993) has reported the 80% of the garment industry follow progressive bundle system. Bundle sizes would possibly vary from two to a hundred components. Some industries operate with a customary bundle size of express garments, whereas others vary bundle sizes according to cutting orders, material shading, size of the things among the bundle, and conjointly the operation that is to be completed. Variety of them use a dozen or multiples of a dozen of garments as a result of their sales area unit in dozens. Bundles of garments area unit assembled among the area where cut components area unit matched up with similar components and bundle tickets.

Bundles of cut components area unit transferred to the sewing section to concern operators which they area unit regular to complete the assembly. One operator is foretold to perform constant operation on all the things among the bundle, tie the bundle, methodology coupon, and set it aside until it's picked up and stirred to future operator. Throughout this methodology would possibly would like a high volume of labor in methodology reason for the number of units among the bundles and conjointly the large buffer of backup that is needed to verify unending work flow for all operators.

In this system bundles of clothes elements are moved in sequence from one textile machine operator to consequent. Every employee receives a bundle of unfinished clothes and performs one operation on every garment within the bundle. When finished of his/her work on a bundle, they're re-tied the bundle and passed on to consequent operator. Every PBS task is given a target time or "SAM" (Standard Allowed Minutes).

Time study engineers calculate the SAM for a whole garment for knowledgeable employee because the total of the quantity of minutes needed for every operation within the production method, as well as allowances for employee fatigue, rest periods, personal time and then on. The success of PBS depends on how ever the assembly system is ready up and employed in a plant.

FEATURES OF PBS

Sewing operations are ordered get into sequence.

Every Operator receives a bundle, will his work, reties the bundle and passes it to the next operator.

- There is a storage facility like rack, bin or table for storing the inter-process
- Work between every operation.
- The Work is routed by suggests that of tickets.

The Employment of the system decrease as corporations seeks additional flexibility.

- Among Every section, works are balanced in keeping with the time needed for every sub-function.
- The Quantity of machinery for every operation is set by the output needed.
- This Method is that the most generally used system within the fashion industry these days.
- This System is mostly used in shirt factories, jeans factories, jacket factories, etc.

ADVANTAGES OF PBS

- This System allows high productivity.
- A high level of labor utilization may be achieved and helps in reducing time and price. Workers of all levels (unskilled, skilled, semi-skilled labors) are unit concerned during this system wherever the operations are unit broken into easy operation. Thus, the value of labor is incredibly low-cost. Individual performances may be monitored and incentives can be offered.
- Bundles can be easily tracked, therefore the problems can be easily identified and solved.

DISADVANTAGES OF PBS

- Inventory cost will be high due to higher work in progress in each.
- Time consuming due to assembling, moving, tying and untying of bundles.
- Proper designing is needed for every batch and for every style that takes more of your time.

SPINNING

The finest combed cotton yarn is produced by their spinning division. With 28 combing machines, 45 ring frames and 20 Auto Conner machinery, the spinning unit uses organic cotton to produce high-quality yarn. The state-of-the-art machinery helps in achieving superior quality organic cotton yarn from counts Ne 20's '60se 60's. They also produce yarn blends from counts Ne 20's to Ne'50ss



Figure 1

KNITTING

The hi-tech machineries from Germany and Italy help them create Rib, Interlock, and Fancy designs. Interlock, Drop Interlock, and Auto Stripes are facilitated with highly-automated Spanish machines. Taiwanese machines for Rib and Wheel Jacquard with Lycra, Japanese Collar knitting machines to knit all types of flat knit collars, and machines from Singapore for Jersey with three thread conversion.



Figure 2

DYEING

Completely equipped with a Reverse Osmosis feed tank, their dyeing plant at Erode recycles discharged water makes it suitable for irrigation, thereby justifying to our environment-friendly operations. It houses advanced machinery from This, Germany as well as HTHP machines for polyester dyeing, winch dyeing, soft flow machines, drying machines, and rotary printing.



Figure 3

PROCESSING

They have hi-tech imported compacting machines from USA & Italy for both open-width and tubular fabrics. Taiwanese raising machines enable brushing on all varieties of fabrics wherein our sue-ding division is supported with machines that are imported from Italy. Their in-house washing units feature recyclable water and multiple wash options like silicon/stone and enzyme, bio-polish, etc.



Figure 4

DESIGN STUDIO

The contemporary design studio wherein the latest trends and techniques are deployed for garment design is equipped with the most up-to-date software that facilitates pattern making, 3D imaging, graphics, draping, etc.



Figure 5

CUTTING & SPREADING

The latest Cutting Systems from the USA, with CAD, CAM, CAS, exclusive Plotting facilities, and Band Knife Cutting Machines from Japan, Korea, and Germany are the highlights of this division. Our automatic spreading machines enable the spreading of tubular, open-width, and woven fabrics



Figure 6

STITCHING

It is a process that requires a high degree of dexterity and astute precision. To ensure this, we have a team of skilled personnel who work towards stitching perfection with 2500 imported sewing machines. There are 40 production lines maintained as per the guidance of Kurt Salmon Associates, the renowned global Management Consultancy, which sets us apart.



Figure 7

FINISHING & CHECKING

Oil-fired boilers provide steam at required temperatures for pressing and drying. For shirts, and trousers, a separate pressing facility has been allocated. The garment is then completely checked for defects. Japanese Needle detector machines have been installed for 100% metal-free products.



Figure 8

PACKING

Packing is done with the utmost meticulousness. In-house stuffing is carried out with great care. The highest standards are complied with from expert packing to safe dispatch and delivery.



Figure 9

PRINTING

Our trendy print designs leave impressive impressions that comply with the everchanging trends and needs of the customer. To offer a complete range of print options, we have installed state-of-the-art placement printing machines which facilitate various types of prints like reactive, discharge, pigment, plastisol, high density, flock, rubber, etc.



Figure 10

TYPES OF PRINTING:

- Pigment (water base)
- Non-PVC (oil base)
- PVC (oil base)
- Glitter print
- Radiant print
- Flock print (powder print)
- Puff print
- High density print
- Discharge print (powder and paste print)

EMBROIDERY

Enabling intricacy of design, our embroidery division is housed with 24 imported machines from Germany, China & Japan. Equipped with 326 heads, these machines are capable of delivering nearly 11.1 million stitches per day



Figure 11

TYPES OF EMBROIDERY:

- Sequence (Top/center hole)
- Grading design
- Normal/ heavy stitching base embroidery
- Jewellery embroidery
- Fusing types
- Embossed fusing
- Phthalate free fusing
- Non-PVC stickers

ACCESSORIES

We have sophisticated equipment from Switzerland for manufacturing inner elastics for briefs, jog pants, shorts, etc. that ranges from 3mm to 60mm are produced using the machinery.



Figure 12

TYPES OF MACHINES:

1. Fabrics inspection machine
2. Plotter printing machine
3. Cutting machine
4. Fusing machine
5. Embroidery machine
6. Sewing machine
7. Thread Trimmer machine
8. Thread sucking machine
9. Iron machine
10. Pull test machine
11. Metal detector machine
12. Bar-code scanning machine
13. Heat seal joining the machine
14. Case label printing machine
15. Moisture checking machine
16. Digital hygrometer
17. Air compressor machine
18. Boiler machine
19. Generator
20. Water pump

FABRIC INSPECTION MACHINE:

Fabric inspection machines are designed to check weaving, knitting defects and shade variations in fabrics. Checking dimensional accuracy in width and length are also possible with these inspection machines. The fabric inspection method allows you to inspect and make necessary markings for quality control in the manufacturing process. There are inspection machines available to detect errors in fabrics that are not easily noticeable to the human eye. Most rejections, during the after manufacturing are due to defects, which have escaped the inspection process.



Figure 13

PLOTTER PRINTING MACHINE:

A plotter printer is a term for printers that are used for printing vector graphics. A computer hardware device that uses stationery writing tools to draw continuous lines on media papers rather than a series of dots like a traditional toner printer. Plotter printers are more sophisticated because they produce high-quality drawings as they print. Best use to print blueprints, maps and diagrams. These printers are used with a computer design application to product line drawings much faster with more accuracy, best for graphic creative businesses such as architecture, engineering designs and other CAD drawings.



Figure 14

CUTTING MACHINE

Cutting is one of the processes in garment manufacturing. In bulk garment manufacturing, multiple fabric layers are cut at a time by means of cutting machines. Different types of cutting machines and equipment are available for cutting fabrics and machines are used as per requirement and production volume. Semi-automatic and automatic improves cutting room productivity and improves cutting accuracy.

Different Types of cutting Machines

Cutting machine and equipment can be categorized as following

1. Manual cutting
2. Semi-automatic cutting machine
3. Fully automatic cutting machine

1. Manual cutting

Hand scissors are used for cutting fabric plies manually. Hand scissors are not machines but very useful cutting equipment. Factories may have semi-automatic and fully automatic machines for fabric cutting, but can't avoid use of hand scissors in cutting section. Scissors are common tool in cutting process and hand scissors have many use in cutting room.

2. Semi-automatic cutting machines

Straight Knife cutting machine:

The straight knife is a common means of cutting lays in conventional cutting rooms because it is versatile, portable, cheaper than a band knife, more accurate on curves than a round knife and relatively reliable and easy to maintain. Even if a band knife is used for the main cutting operation, a straight knife would be used to separate the lay into sections for easier handling.

Band Knife cutting machine:

Band knives are used when a higher standard of cutting accuracy is required than can be obtained with a straight knife. Pieces to be cut are first cut on a block, and then cut exactly on a band knife.

Round knife cutting machine:

A round knife is used only for straight lines or lower no of lays of relatively few plies.

Die cutting machine:

This machine is useful where small motifs with particular shape and pattern and accuracy in cutting are needed.

3. Automatic cutting machines

There are different types of automatic fabric cutting machines.

Computerized cutting machine:

Computerized cutting machines are used where high volume of garments is manufactured. This machine cuts fabric layers as per command given in computer system. Automatic cutting machine is also known as CNC machine. In the automatic cutting room, fabrics are spread on the table by auto spreader and the lay is positioned in the cutting table prior to automatic cutting. Many videos are available on the YouTube for automatic cutting machines.

Rib cutting machine:

Narrow fabric tape of rib is cut from knits fabric. Ribs are used in t-shirts neck finishing or piping operations and many other knits apparel manufacturing

Laser cutting machine:

Instead on blade fabric layer is cut by laser rays. Laser cutting machine is also computer-controlled machine.



Figure 15

FUSING MACHINE:

Fusing Machines are used in the garment industry to fuse a material capable of being fused to a base fabric through the process of pressure, heat, and time. The fused material should have acceptable strength, the ability to stand continuous wash, or any fabric treatment.

This extremely vital process that defines and maintains the quality of the garment involves holding the fabric and interlinking the conveyor belt while heating. This interlinking has adhesives that melt at a certain pressure and temperature to bond with the garment. This process provides the garment strength and support and thus is a highly vital process.

There are a number of fusing presses deployed in the process that makes the entire process of Fusing a quality procedure:

1. Continuous Fusing Press
2. Flatbed Fusing Press

3. High-frequency Fusing
4. Hand Iron

Continuous Fusing Press

In this machine, the parts of the garment and the interlining are placed one upon another properly for stiffening fabrics, among other things. On the endless loop or loop-shaped feed sheet and fed in a flat condition.

The feed sheet carries this part and the interlining to the fusing chamber. In the fusing chamber, the required pressure and heat are given.

To transmission of heat in the interlining, a direct or indirect method is applied. After applying heat, the required pressure is applied to the interlining with the help of a pair of roller irons.

The surface of the roller is generally covered by hard rubber. With the help of spring or pneumatic power, the pressure is created in rollers. And there is an arrangement of increasing or decreasing heat. The preselected time is determined through the control of the speed of the endless feed sheet.

Just after fusing, the fused parts are removed carefully from the delivery sheet and in a flat condition. Because during removal of the fused part in a heated condition., any folds created there may be permanent.

One worker is persistently feeding, and another worker is ceaselessly accepting the fused parts on the conveyance side.

The production of a continuous machine is high, and the quality of the fusing is also good. In some machines, for double fusing, there is an automatic feedback system. This is the most used machine in the garments industry. These are often used to apply the best tape that sticks to the fabric.

Advantages

1. The production of a continuous machine is high.
2. Quality of the fusing is good too.
3. For these reasons, it is mostly used in the garments industry.
4. Very reasonable for stack fabric utilizing
5. There is no plausibility of fabric shrinkage

Disadvantages

1. It is suitable for woven/knitting fabrics
2. Whole role fabric and interlining are fusible because the pressure is applied for a short time on the interlining and the fabric. So, less chance of the plies of fabric being damaged.

3. The pressure is applied for a short time, so there is no chance of fabric shrinking during the application of heat.

Uses/Application

1. High cost.
2. Because of its large area consumption, it's difficult to construct.
3. If the pressure roller is slanted or the surface of the roller is uneven for any reason, or there is a difference of pressure in the full diameter of the roller, the bond strength between the components will be different.
4. Bacteria thrive in cold climates, and washing your laundry machine with cold water will not do much to sanitize the machine, and the garments would still be prone to both odor and germs. So, even though lower temperature fabric washing or machine cleaning can be environmentally friendly, it is not hygienic. This is especially true for garment industrial laundry machines or hospital laundry machines that deploy large-scale fabric cleaning.
5. Therefore, besides using the detergent, make sure you use slightly warm water and disinfectant while garment washing. For machine cleaning, use a laundry cleaner and sanitiser every once in a while, or every two months, depending upon the cycles of machine usage, to make sure the machine is thoroughly clean.
6. There is a myth that surrounds people that the more soap you use, the cleaner and more sanitised your clothes will come out of the washing machine. However, using more suds only builds up as residue in the wash cycle, which is not entirely removed and becomes a breeding ground for bacteria and moulds. This also increases the odour of the garments and brings down the hygienic level of your fabric.

Flatbed Fusing Press

In this machine, there are generally two beds; one bed is static called 'BUCK,' and the other is moveable called 'HEAD.'

The interlining and garment component is positioned first and placed on the BUCK. The top of the BUCK is covered by some soft beads made of fabrics, blankets, or silicone rubbers. The surface buck and head are covered with fabrics having a coating of PTFE. For this coating, the melted resins, dust, or spots can easily be cleaned.

The heating system may be electrical or steam. Application of temperature, pressure, and time could be pre-set in this machine; hence fusing conditions are adequately maintained.

First, the part of the garment, which is for fusing, is placed flatly. Then the resin surface of the interlining is placed carefully on this. Due to switch operation, the HEAD moves downward and comes in contact with BUCK, and pressure is applied on the component (interlining). Temperature is applied through HEAD on the whole surface, and after a specific time, the HEAD moves upward.

After applying pressure and heat up to a specific time, the HEAD is separated from the BUCK. Then for cooling of the fused parts, an air sucking fan in the buck is made operative. For sucking the air within the buck, the fused parts are cooled very swiftly. Going up off the HEAD

and sucking of the air within the BUCK for a specific time. These jobs are set in cyclic order in many machines.

Advantages

1. Temperature, pressure, and fusing time can be set again as per will.
2. Except for pile fabrics, mostly for all fabrics, this machine can be used.
3. Low cost.
4. The natural ironing of garments can also be done with this machine.
5. Tends to reduce fabric shrinkage.
6. Easily cleanable.

Disadvantage

1. Not suitable for large-scale production.
2. To get good quality fusing, the temperature, pressure, and fusing time has to be checked.
3. Sometimes, HEADS and BUCKS have to be changed.

High-Frequency Fusing

1. This type of machine is quite different from a continuous fusing machine. Because in this machine, heat is created the same as a microwave cooker.
2. Fabrics and interlining are arranged in stacks and placed between two metal plates of the fusing machine. The upper plate exerts pressure on the plies of the fabrics and the interlining with the help of spring pressure.
3. The material between the plates moves at high speed. So high friction heat is generated within the material. This heat is generated uniformly at the same time on every corner of the fabric and interlining.
4. For the generation of heat, water is a must. The difference between water vapour, the difference in heat may also happen.
5. The required fusing time depends on the electrical power of the machine and the height of the lay of the fabric. But in this type of machine, it takes 1 to 3 minutes for fusing

Advantages

1. Production rate is high

Disadvantages

- Before fusing this type of machine lots of caution has to be taken care of. E.G., the setting, nature of the fiber, the height of the lay of the fabric, amount of water vapor in the fabrics.
- Proper settings of this machine are the main problem. Because of complicated settings, there may be over fusing or under fusing
- This type of machine is minimal
- Bigger risk of defective products.

Hand Iron

The interlining, which is fused comparatively in low temperature and pressure, is fused by using a hand iron. These are mostly used for applying lightweight fusible interfacing for applique.

There are various troubles during fusing; none of the three parameters of temperature, pressure, or fusing time can be adequately controlled. The operator approximates the time in this manner.

So, the strength of the bond in this method is weak. For better results after sewing the garment with the fusing, again, the final fusing is done

onto the fusible, covering the region bit by bit, and utilizing steam to enable the warmth to move.

During the washing of the garments, the bond between interlining and garments may be separated.

EMBROIDERY MACHINE:

The term “machine embroidery” refers to the process of using a sewing machine or specialist embroidery machine to create a pattern on a textile of your choice. It is most commonly used commercially, as it’s a great tool for branding products or uniforms, but it can also be used to create patterns for purely decorative purposes. There are two main types of machine embroidery: free-motion and computerised.

With free-motion machine embroidery, designs are created using a basic zigzag sewing machine, but this can be quite limiting. It’s also labour-intensive and very time-consuming, because the embroiderer is required to develop the design manually using the sewing machine’s different settings.

On the other hand, as the name suggests, computerised machine embroidery is controlled by a computer. These industrial and commercial embroidery machines, like the ones we use here at Custom Planet, have a hooping or framing system that holds a fabric's embroidery area taut under the sewing needles. The area is then moved automatically by the machine to create the design from a pre-programmed digital embroidery pattern.

Embroidery machines will vary in their capabilities, and they all require different degrees of user input. Some will require you to change the thread colour during the process, while others will be able to trim and change colours automatically. Also, multi-needle machines can consist of numerous sewing heads, which means they can embroider multiple garments at once.

THREAD TRIMMER MACHINE:

This machine can be used by industries like Garments (t-shirt, shirts, jeans, trousers, sarees, suits, dresses, shorts, top, designer wear, etc.), Footwear (sport shoes upper, sandals upper, leather shoe



Figure 16

THREAD TRIMMING MACHINE:

Thread Sucking Machines are enabled with fully automatic action to ensure clean working area. It can be used for a variety of garments ranging from shirt to skirts of all sizes.

- This machine uses centrifugal ventilation machine negative pressure suction principle to eliminate the dip in the all kinds of shirts, pants, pyjamas, clothing sewing thread, dust and sundries and can ensure the quality of products such as clothing appearance, improve the grade of clothing products.
- Strong suction: Suction, high working efficiency, no need the unlock button, can remove dander and floating hair.
- Safety: Automatic shutdown when suction cloth.
- Simple operation: Easy to use and safely.
- Button pulls test is used to determine the pulling strength of any type of button and snaps used in garments. It is also used to determine the holding or breaking strength of prong ring attached snap fasteners onto garments to ensure the button fixed on the garment's product properly. In this article, you will have an idea of a button pull test SOP (Standard Operating Procedure) used in the apparel industry.

- Consists of an Upper Snap Clamp, a Lower Fabric Clamp, and Force Gauge mounted on a Stand. The snap component is gripped by the Upper Snap Clamp and the garment is fixed to the lower Fabric Clamp and by turning the Top Flywheel an operator can apply a specific force and the holding force. The breaking strength can be recorded. A pull test is mandatory for any type of garment product use button



Figure 17

METAL DETECTOR MACHINE:

A **metal detector** is an instrument that detects the nearby presence of metal. Metal detectors are useful for finding metal inclusions hidden within objects, or metal objects buried underground. They often consist of a handheld unit with a sensor probe which can be swept over the ground or other objects.

If the sensor comes near a piece of metal this is indicated by a changing tone in earphones, or a needle moving on an indicator. Usually the device Ives.



Figure 18

AQL:

AQL (Acceptable Quality Level). It is the final checking process of the garment before the garment is sent to the Buyer, the checking includes garment quality and thorough inspection, direct inspection of regulations, duties. All procedural and quality requirements are met, the result or result of the final inspection is pass, and the garment is ready to be sent to the Buyer. But if it finds a critical point during the final inspection process, the garment is declared failed.

Inspection Levels									
Lot Batch Size	General Inspection Levels			Special Inspection Levels					
	I	II	III	S-1	S-2	S-3	S-4		
2	to	8	A	A	B	A	A	A	A
9	to	15	A	B	C	A	A	A	A
16	to	25	B	C	D	A	A	B	B
26	to	35	C	D	E	A	B	B	C
36	to	50	C	E	F	B	B	C	C
51	to	90	D	F	G	B	B	C	D
91	to	150	D	F	G	B	B	C	D
151	to	280	E	G	H	B	C	D	E
281	to	500	F	H	J	B	C	D	E
501	to	1,000	G	I	K	C	C	E	F
1,001	to	1,200	H	K	L	C	D	E	G
1,201	to	10,000	I	L	M	C	D	F	G
10,001	to	35,000	K	M	N	C	D	F	H
35,001	to	150,000	L	N	P	D	E	G	J
150,001	to	500,000	M	P	Q	D	E	G	J
500,001	and over		N	Q	R	D	E	H	K

Acceptable Quality Level (Single Sampling Plan for Normal Inspection)															
Sample Size Code Letter	Sample Size	0.4		0.65		1		1.5		2.5		4		6.5	
		Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject
A	2													0	1
B	3											0	1		
C	5									0	1				
D	8							0	1					1	2
E	11					0	1					1	2	2	3
F	20			0	1					1	2	2	3	3	4
G	32	0	1					1	2	2	3	3	4	5	6
H	50					1	2	2	3	3	4	5	6	7	8
I	80			1	2	1	2	3	4	5	6	7	8	10	11
K	125	1	2	2	3	2	3	4	5	6	7	8	10	11	15
L	200	2	3	3	4	3	4	5	6	10	11	14	15	15	22
M	315	3	4	4	5	4	5	6	7	10	11	14	15	21	22
N	500	4	5	5	6	5	6	7	8	10	11	14	15	21	22
P	800	5	6	6	7	6	7	8	9	10	11	14	15	21	22
Q	1,250	6	7	7	8	7	8	9	10	11	12	14	15	21	22
R	2,000	7	8	8	9	8	9	10	11	12	13	14	15	21	22

Figure 19

TYPES OF INSPECTION

Pre-Production Inspection: this is often done before production starts.

1st line production inspection: This inspection is done at the starting of production once the first production final stage of required style of garments is checked; to differentiate potential variation and to try to do necessary corrections to be created in bulk production. this sort of examination is finished at a preliminary stage of producing of a method covering primarily style detail, general look, craft, measurements, material quality, Trims and elements, Lot color, printing, embellishments and laundry quality.

2nd line Production Inspection: This examination is finished throughout production to confirm initial discrepancies are corrected and corrected. This examination could be a follow-up of the one 1st inline production examination and is usually allotted once first line examination once discrepancies are detected at that point.

Final Random Inspection: This examination is allotted once the assembly of the entire amount of associate degree order or partial delivery is completed. A sample heap are elite from the order and a share of the clothes are inspected, this share typically being stipulated by the client.

GARMENT DEFECTS CLASSIFICATION:

Once the samples are selected , every article is to be singly inspected. Defects detected during associate degree inspection are buyer specific thus so vary from one purchaser to a different. Defects are classified into the subsequent categories:

Important Defect: a serious defect that may cause hurt or injury to the user and/or end in a risky condition.

Major defects:

A defect that falls to fulfill the necessary rules directly moving the usability, safety and price of the merchandise or as such by client buyer are considered as major defects and are typically not repairable as an example material hole, shading among the panel, wrong activity, foreign yarn, dye patches etc. The activity tolerates level could vary from client to client.

Minor Defects:

A defect that doesn't adversely have an effect on the usability of the merchandise however will consists of a deviation from the initial sample, and should have an effect on the sale of the merchandise. a number of these defects are thanks to attainment and a few is serviceable however still will deteriorate the serviceableness of the merchandise as an example stain, skip sew, wavy bottom hem

Single sampling plan – Normal inspection

Assurance as AQL a pair of 5% and loads of 200 cloths and also the sample size is eighty clothes. If the quantity of defective clothes found is five the overall lot is

“acceptable” suppose if the clothes found is six, the overall heap is “reject/ re-check”.

Double sampling plan – normal inspection:

Assurance an AQL 4.0% and lot size is 1200 garments and the sample size is “acceptable” suppose if the defective garments found are 8, the total lot is “reject/re-check”. Today the most of the customer demand for high quality products at low prices. So, they must always maintain the standard from the start stage of the assembly then solely the ultimate product with reach the patron with right quality and that they will get the order continuously from our customers. The garment makers examine their merchandise unceasingly by selected accountable inspectors then solely the correct quality product can reach the shoppers

DEPARTMENTS IN SCM GARMENTS:

There are a variety of departments in the apparel industry with different workings. All the functionality of departments in the industry is different but aligned towards a goal.

MERCHANDISING –

Merchandising is a method by which products are designed, created, implemented and delivered to the consumer. This involves directing and supervising product line development from start to finish. Marketing and [Merchandising Department](#) -Under ahead of profit control, a team of merchandisers and marketers work together. Merchandisers are competing with foreign buyers. The teams are made according to the directed buyers

DEPARTMENTS IN SCM GARMENTS:

There are a variety of departments in the apparel industry with different workings. All the functionality of departments in the industry is different but aligned towards a goal.

A Merchant Main Responsibility

Order Confirmation from the Buyer

- Product Development
- Market and Product Review
- Marketing the Concept
- Booking Orders
- Confirming Distribution
- Design and Sampling
- Costing
- Raw Material
- Manufacturing Follow-up
- Transactions Follow-up
- The merchandising department is responsible for all different types of sampling and approval.

SAMPLING DEPARTMENT

The **sampling department** is one of the most important departments in any export building and plays a vital role in a unit's uplift. The sampling team works directly with the Merchandising and Development department. Sampling is done to see how the product will look when manufactured in bulk and to check if there are any differences in the design that are made according to the requirements of the consumer. Sampling is the stage of development of a drug. It is a process through which a small number of clothes are made to match the buyer's requirement and obtain the buyer's approval to start production. It's different from bulk manufacturing because every tailor is multi-skilled here. This department makes samples based on specifications and requirements sent by the purchaser in the tech pack. Sampling process varies from purchaser to purchaser, and type of style as well, but a particular order of sampling is followed in the industry, the stages and purpose of the sample may be the same but the terminology used may vary and depend entirely on the purchaser.

The typical samples namely described as:

- [Design development](#)
- [Proto sample](#)
- [Fit sample](#)
- [Ad or photoshoot sample](#)
- [Salesman sample](#)
- [Pre-production sample](#)
- [GPT sample](#)
- [Size set sample](#)
- [Red seal sample](#)
- [PP sample](#)
- [Green seal sample](#)

Such samples are sent one after the other to the retailer for the buyer's approval and to proceed further. In addition to these normal steps, the buyer often recommends improvements to the prepared sample, and then adding such suggestions makes a counter sample and is sent to the buyer for approval. The **sampling department** helps the merchandising department find out about the consumption of fabric per unit of clothing and thus helps in costing the cloth.

FABRIC SOURCING DEPARTMENT

The clothing procurement department is basically interested in deciding how and where to get its products, i.e., cloth. It works in collaboration with the merchandising department and takes care of the delivery of the appropriate items within the scheduled time and cost.

A fabric sourcing team needs to have experience of all forms of fabric to accomplish its function efficiently. **PURCHASE**

The **purchasing department** is similar to the procurement department, but mostly due to its own manufacturing department while the procurement department is working to purchase the accessories and trimmings. However, the purchasing department's operating cycle is close to the department for sourcing fabrics.

FABRIC AUDIT DEPARTMENT

The main goals of the **Fabric Audit Department** are:

- To examine fabric defects using different methods.
- Selection of structures according to AQL 1.5.
- The test takes place on the following grounds: the shade is segregated at 100 percent.
- A 100 percent width separation is done.
- Deficiencies for 15 percent of the fabric are inspected.
- The shrinking check is 10-15 percent lightweight and most of its 100 percent heavyweight.
- Only in full width is the textile tested.
- Whether the roll is correct or not, the amount is checked. The quantity is put to the test.

ACCESSORY STORES DEPARTMENT

Roles of Accessory Stores Department

- The shops collect in-house raw materials and after this, the sampling process is conducted and a list of the tests which will be performed for these specific products must be made and then sent to the laboratory.
- The lists of accessories and measures commonly tested are: Coloured lace and tape checks for colour rapidity. The elastic colour speed test is tested for the dimensional consistency of elastic fabrics.

PLANNING DEPARTMENT

The **Department of Planning** has a key role to play in approving the order, which helps merchants to calculate how much the particular style will cost them, telling them if the company is able to produce the particular style within that time frame. Includes fundamental planning in the production of apparel:

- Order receipt.
- Adequate planning is available to check whether enough power is available to deliver the specified date of delivery.
- The availability of cut pieces and panels (eventually cut-brother, print, wash, and pack) in the non-sewing areas is verified.
- Search for ample time to order and collect textiles, trimmings, approval samples, laboratory tests, etc.
- The customer shall be notified of the delivery date.
- Proper coordination between departments to ensure smooth process flow.
- Monitoring of program development.
- If possible, REDO.

LABORATORY DEPARTMENT

The **laboratory department** at the factory is designed to check both the fabric and accessories, with all appropriate equipment and instruments. Nevertheless, there are several tests that the buyer prescribes those machines for such tests cannot be used in the plant and that the plant does not have the correct equipment, therefore they will submit such products or devices, which would need other tests to be performed in the external laboratories, with the permission of the buyer and the dealer.

MACHINE MAINTENANCE

Besides having a quality program and the best practices, "machine repair" is also very necessary to receive goods of "quality." Unacceptable product quality also results in malfunctioning machines. Breakdown and preventive maintenance are aimed primarily at reducing downtime and rising life, respectively. Proper maintenance of the machine is also required to avoid damage on the floor.

Functions of Preventive Maintenance

- Care of fittings
- Adjustment of settings
- Oil change
- Graph of repair
- Reports
- Outward / inward
- Needle weekly reports.
- History card

Needle log cards for the system setup table

CAD DEPARTMENT

Most apparel industries have their own **CAD department** for varied style garments made using some specialist software packages.

The CAD department is responsible for the following functions:

- Determining cost-cutting average
- Making the most efficient cutting marker
- Development and alteration of patterns
- Development of size set patterns by grading
- Sticker design

CUTTING ROOM

- The **Cutting department** receives an order from the production manager to cut a fabric style. Cutting order is an authorization to cut a given number of styles from the spreads by the production manager.
- This comes in the form of a box file with the following details: sampling, clothing (fabric and trim fabric), fabric consumption, and other style details.
- CAD Methods sheets the planning-length of lay etc. the scale of the ratio and the colors in which patterns are to be cut is the planning symbol of the CAD Design required sheet.

PRODUCTION DEPARTMENT

The production floor produces in two categories,

Pilot Production

Bulk Production

The **production department** may obtain specifics such as, the style of the clothes, the number of operators needed, the batch for which the style has to be mounted, any specific types of machines to be used for the particular style, aim for each day Breakup of the production quantity.

Production managers help the planning department to schedule or assign a specific line to the style by telling them the line's potential and informing them about the operators' skills as well.

IE DEPARTMENT

The **IE department** has to work with many other departments as this department provide the whole idea of the construction of the garment and the thread and trim usage requirements, skill level categorization of the operators and other relevant aspects, therefore they play a vital role in deciding the cost of producing a single piece of the garment and also determine the factory costs for that particular style by calculating the SAM value.

EMBROIDERY DEPARTMENT

The section on embroidery is a department that only comes into the picture when demands of the particular style. From the sewing floor or from the cutting department, the embroidery section receives the garments and then they start their embroidery.

WASHING DEPARTMENT

The garment is sent to the **washing department** until complete with all the operations and is then finished in line with the buyer's requirements for that particular style and thus plays an important part in the final look and texture of the garment, which must be faithful to the buyer's specifications 100%.

There are various types of washing procedures involved and they are categorized as follows: standard washing/water, washing/drying, softener washing, desire washing, enzyme washing,

stone enzyme washing, rubber ball washing, denim washing, bleach washing, tinting / T-staining

QUALITY ASSURANCE DEPARTMENT

Performance is the most important criteria for any product and the same concept applies also to the garment industry.

The **quality assurance** teams have split their work into different manufacturing stages in order to maintain consistency and are grouped into four major groups that are as follows.

- Pre-production audit
- Sewing audit
- End-line audit

FINISHING DEPARTMENT

The finishing department is the department that comes after all the departments and plays an equally important roll.

Most of the following steps in the region are found in the department, Trimming Inspection Semi-Packaging Solid Packaging Mixed Packaging Pressing Tagging.

PRODUCT AND COMPONENT SAFETY REQUIREMENT:

RISK

RISK A probability or threat of damage, injury, harm, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preventive action.

RISK ASSESSMENT

The identification, evaluation, and estimation of the levels of risks involved in a situation, their comparison against benchmarks or standards, and determination of an acceptable level of risk.

Foreseeable Use- Children

- Mouthing Object
- Rotating Objects
- Banging Objects
- Throwing Objects
- Inserting (Object into body cavity)
- Combining the Objects
- Using inappropriately
- Representational Play
- Using Imaginatively
- Testing the limits

The Risk Equation:

$$\text{RISK} = \text{Hazard} \times \text{Probability}$$

Hazard: Potential for the product to cause harm

Probability: Possibility

PRODUCT COMPONENT AND SAFETY

MATERIAL SAFETY

Metal Components/Trims should be,

- Nickel free
- Non-ferrous
- Free from sharp/rough edges
- Sourced from a nominated supplier
- Should not conduct Heat
- Should Pass through Metal Detector Plastic Components

Trims should be

- Phthalate free
- Free from sharp/rough edges
- Not able to break (not brittle)

Coloured/Painted/Coated should be

- Lead free
- Phthalate free

All components general requirements –

Must not be made of

- Glass
- natural wood
- rubber
- seashell
- real or waxed pearl
- other limited natural resource like
- Horn
- Coconut shell
- Feathers
- Down, etc.,

- All grip able components must with stand

90 Newton/10 Sec pull Test for babies

/ Toddler and children, & 70 Newton

10 Sec for adults –

All non-grip able components must with stand appearance after 5 washes

AGE GROUP

11 Age Group Baby

- Up to 12 months Toddler
- Up to 36 months / 3Years Young Children
- Up to 7 years Older Children
- Up to 14 years Over 14 years Adult 12

Breakdown of Hazards

A hazard is a potential source of harm to the wearer

- Choking / Aspiration
- Suffocation
- Strangulation
- Laceration
- Insertion
- Amputation
- Restricted Blood circulation and Tourniquet
- Entrapment and Interference
- Pinching

Choking / Aspiration

- Mouthing can cause choking.
- Objects swallowed can cause a blockage of the airway.
- Choking hazards from clothing can be caused by components becoming unattached e.g., buttons, beads, sequins and fibres. - 90N Pull test required on all trims to prevent trims becoming detached.

Suffocation

Suffocation can be caused by plastic lined garments ex. Bibs and raincoats as they tend to be made in ‘non breathable’ fabrics.

Garment packaging can also be a hazard

Strangulation

There are two methods that cause strangulation: -

Suspension strangulation obstructs airways.

Ligature strangulation obstructs the flow of the blood to and from the head.

Items of clothing that may cause strangulation are: -

Draw cords on clothing, ties and scarves.

Strangulation can occur when a child is playing or while going about their everyday business

Laceration

- Laceration can occur by the use of buckles, glass beads and sharp edges on clothing.
- The sharpness of points and edges can cause this injury. Also, the rigidity of the materials.

Amputation / Tourniquet

- Amputation within clothing can be caused by the tourniquet action through the use of long thin threads/cords and loops.
- Float loops and threads end can be no longer than 1cm to prevent amputation especially important in socks and gloves/mitts for children.

Entrapment / interference

- This can be caused by the use of loops, bows and decorative holes
- . A key requirement on all children's wear to ensure this does not occur is the minimum neck stretch measurement that we put on all size specifications to ensure that all pull on styles go over a child's head easily.

Pinching

- Moving parts of a garment may catch skin or hair.
- Examples of these are zips and snap fasteners.
- To reduce the risk, we request that suppliers use zips with plastic teeth ex: Vislon zip and use a zip facing where possible.

Key Rings & Bracelets, Accessories with Clothes

Standard

- Babies and Toddlers
- Not allowed.
- Children's & adults wear: General requirements as per material used.

Specific Requirement

Must not be positioned in neck area, additional stickers required.

Attachment

- On trousers and skirts
- Kimble in belt loops.

For Top

discuss with TM

Bags

- Standard For All Categories:
- Fiber composition must be included on bag labelling.
- Straps/ handles must reinforce and pass strength testing relevant for size of bag.
- Bags must be free from infestation
- In case of Beads, Sequins, Tassels, Eyelets, Buttons and Embellishments used
- need to follow respective requirements.

For Babies, Toddler and Children

- Straps to be quick release/breaking point of between 10-40N.
- Mushroom and Y-shaped Velcro is not permitted for use on quick release.
- All embellishment to withstand pull test.
- Claw embellishments are not permitted.
- Glass embellishment is not permitted.
- Diamantes are not permitted.
- Hand sewn embellishment is not permitted.
- Mag dots are not permitted (As cannot pass through the metal detector)

Beads

Babies and Toddler:

- Should be machine applied, Lock stitched.
- Should pass 90N pull test

Adults

- Can be hand sewn
- Grip able beads must pass 70N pull test and non-grip able beads must pass 5 wash tests.
- Embellishments must be cast off after every 15 when bead = 9mm with max float length 1 cm
- Must not restrict stretch e.g., on necks and cuffs

Children

- Can be hand sewn
- Grip able beads must pass 90N pull test and non-grip able beads must pass 5 wash tests.
- Embellishments must be cast off after every 3 beads with max float length 1 cm
- Must not restrict stretch e.g., on necks and cuffs

Labelling

- Wash inside out.
- Iron on reverse.
- No spare beads to be supplied on any children's garments. And should be supplied for adult wear

Belts

Standard

- Must have a fixed keeper at the buckle end.
- Keepers fastened by a staple must be securely embedded into the turnover at buckle end, keepers must not be able to rotate and expose the staple.
- Finish on material must not have a smell, or transfer, or alter the appearance of the material unless specified in the design. - Eyelet requirement should be followed.

Leather Belts

- Must be leather hide tested and marked.
- Must be species tested.
- Stretched areas of skin must not be used.

Elastic Belts

Eyelets and rivets not permitted on elastic belts.

Fabric Belts

- Fabric must be cut in one piece along the grain.
- Backings where used must be cut to finish 2mm from edge of belt.
- All fabric edges turned in.
- Stitching joins are NOT permitted

Children

Stapled loops are not acceptable on children's products.

Baby & Toddler

- Metal D rings/ buckles must be fully welded and comply with testing requirements
- Belts must be free from infestation.

Labelling

- Fiber composition must be on the belt care label.
- For non- machine washable belts, a "Remove belt before washing" label is required.
- Part of set should be added. Attachment
- Belts should be Kimbled with garment.

Bibs

- All prints must be Phthalate free
- No side or back neck ties permitted
- To be joined by either press fastener or Velcro
- Plastic back bibs are NOT permitted

Bootees/Walk in sleep suits/Pram shoes

- Non slip fabrics for example dot printed twill must be used for the soles of all baby bootees and baby shoes.
- Baby walk-in sleep suits must have non-slip dotted soles from 9/12M and above.

Specific requirement-

- On baby bootees all overruns of seam must be at the back of the foot.
- On baby grows, sleep suits, snow suits etc., seam on foot must start and finish at back of heel (i.e., overruns at back of heel)

Decorative Bows

All

- The ends of ribbons must be secured to prevent fraying or unravelling.
- If ribbons finished with heat-seal or laser cut there should not be any sharp edges.

Babies

- Bows must not be functional.
- Bows must follow the draw cord regulations.
 - All bows must be secured with a lockstitch.
 - Fixed tails of bows in baby shoe should not exceed 5cms in length.

Accessories

Bows to be fixed with stitch through knot unless specified.

Children's Accessories

Loops must not be great than 7.5cm

Braces Standard

- Strap must be woven to specified width, not cut to width.
- Split widths of elastic are not permitted.
- Clips and adjusters must be made from an appropriate material with a suitable width and strength to support the product. All clips must be fully functional for end use.

Baby & toddler

Two-piece adjusters not permitted for use.

Buttons

Standard

- Must not be made from acrylic polycarbonate, glass or polypropylene as these materials will not withstand the pull test.
- Polyester is the recommended substrate for solid colors.
- Nylon66 may be used
- providing no sharp injection points.
- Buttons must not resemble or smell like food.
- Must be non-ferrous and nickel free.
- Must not be made of natural wood, rubber, seashell, real or waxed pearl (due to high lead content) or other limited natural resource material.
- Toggles must be resistant to abrasion and the cords attached by bar tacking.
- All spare buttons must meet the legal requirements stated in the Technical Manual and perform to the 70N pull test for adults and 90N for children. 1 spare button is required on all garments. If there are 2 different sized buttons, 1 of each is required.
- Buttons must be machine lockstitch with a minimum of 10 stitches. Chain stitch button attachment is not acceptable. Hand stitch buttons are only permitted for adult wear but must meet 70N pull test.
- Buttons must be attached to a foundation of either 2 ply fabric or to 1 ply with interlining behind or a self-fabric patch.
- Automatic thread trimming at the needle point with a maximum of 0.3cm – 0. 5cm. It is recommended that the following process be adopted in all factories.
- The system of changing the bobbin and applying the first button to a card or fabric swatch helps to ensure the first button (which usually has fewer stitches) is not attached to the garment.
- The last button must also be cut off for the same reason, as this may also have fewer stitches.
- All washed garments must have buttons attached after the washing process.

Note

- Spare buttons, sequins, beads or any other component must not be attached to a Children's wear article in a Kimbled poly bag.

- Spare buttons are only required on the following Children's wear product. Back to School, Outerwear, Premium and-Branded or as advised by the relevant Technical Manager
- Spare buttons to be lockstitch attached to the care label and meet 90N pull testing.
- If spare button is stitched onto a jiffy label/poly satin tape which is positioned underneath the care label this must also meet pull test requirements.

Children

- No jeweled or 2-part buttons permitted including self-covered buttons, however 1 piece covered buttons are permitted.
- Toggle buttons must be assessed for shape, catchment and attachment hazards.

Poppers / Studs / Rivets All Children

- Must be nonferrous Nickel and lead free.
- Must be source form nominated supplier
- Not positioned on the seat or knee area.

Testing Attaching Method

- All to have signed data sheet.
- Pinch setting to be tested in house in every 45 minutes (bulk garments)
- Pull tested to be 90N and must be conducted 3 times per day(mock)

Eyelets

- Sourced from nominated supplier
- Should pass pull test
- Should have clean rose/roll finish
- Should be checked for segmentation
- No sharp edges
- Should not be attached in Stretch fabric
- If needed washers should be used to avoid Rotating

Draw String, Functional Cord Decorative Cord, Tied Belt or Sashes

Drawstring:

Cord, chain, ribbon, string or tape of any textile or non-textile material which passes through a channel or loop(s) or eyelet(s) or similar to adjust the size of the opening, or part of the garment or top fasten the garment itself.

Functional cord:

Cord, chain, ribbon, string or tape of any textile or non-textile material which is used to adjust the size of the opening or part of the garment to fasten the garment itself.

Decorative cord:

Non-functional cord, chain, ribbon, string or tape of any textile or non-textile material, with free end with or without embellishment such as toggle, pom-pom, feather or bead, which is not intended to be used to adjust the size of the garment opening or fasten the garment itself.

- Fringes are considered as a series of decorative cords.
- Free ends of fixed bows are considered as decorative cords.

Tied Belt or Sash:

Decorative or functional piece of any material of not less than 3cm wide, tied around the chest or waist area

Draw String, Functional Cord Decorative Cord, Tied Belt or Sashes**In Draw cords, Functional cords, Tied Belts, Sashes,**

- Free ends must have no Knots or 3D Embellishments.
- Free ends should not be finished with Shoe lace end up to 36months.
- Ends shall be secured to prevent fraying by bar tack or heat sealing.
- Knots and 3D embellishments are not allowed even along the length of draw cord.
- Toggles can be used only in draw cords with no free ends.

In Decorative cords,

- Embellishments are permitted in decorative cords.
- Toggles can be used in decorative cords.

Draw cord Tacking:

- Draw cords should be tacked at Centre back and Side seams in sizes 24months and below.
- Draw cords can be tacked only at Centre back in sizes above 24months.

BODY ZONES:

ZONE A: Head, Neck, Upper chest area

ZONE B: Chest and waist Area

ZONE C: Below crotch area

ZONE D: Back area of the diamond

Draw String, Functional Cord Decorative Cord, Tied Belt or Sashes**Zone-A (Head, Neck & Upper Chest area)**

- Draw cords with free ends are not allowed.
- Draw cords without free ends are allowed which should not have any protruding loops when garment is laid flat and when adjusted to fit maximum protruding loop can be 15cm.
- When Toggles are used it must be fixed to the garment.
- Decorative Cords are allowed and maximum length can be 7.5cm.
- Adjustable Tabs are allowed and maximum length can be 7.5cm and should not have any button, buckle, toggle at free end. Shoulder straps (that are tied at shoulder) are allowed and maximum free end length can be 14cm from the point of tied and Fixed loop circumference can be maximum 7.5cm.
- Halter neck must not have free ends at back. A clip fastening is acceptable to join the halter straps at back.

Zone-B (Chest & Waist area)

Garments worn from waist down i.e.-Trousers, Shorts, Skirts, Briefs, Bottoms shall comply with the below

Draw Cord:

maximum free end length can be 20cm (when garment relaxed)

Draw Cord without free ends:

There should not be any protruding loops when garment stretched to its maximum and laid flat.

When toggles used it has to be fixed with garment

Functional Cord:

maximum free end length can be 20cm Decorative Cord: maximum free end length can be 14cm

Adjustable Tab:

maximum free end length can be 14cm Garments other than the listed above such as Dress, Shirt, Dungaree, Coat shall comply the below

Draw Cord:

maximum free end length can be 14cm (when garment relaxed)

Functional Cord:

maximum free end length can be 14cm

Decorative Cord:

maximum free end length can be 14cm

Adjustable Tab:

maximum free end length can be 14cm

Zone-C (Below Crotch area)

Must not hang below the hem of garment including any Toggles, embellishment, etc

Cords without free ends at lower end of the garments, should lie flat against the garment when tightened/fastened

Garments that are finishes at angle such as Trousers, Skits etc should not have any cords at outside of the garment. Can be at inside garment and should not have any buttons, buckles, toggles at free end

Adjustable Tab:

maximum free end length can be 14cm and should not have any buttons, buckles, toggles at free end

Zone-D (Back area of the garment)

- Draw cords are not allowed at back side of garment
- Functional cords are not allowed at back side of garment
- Decorative cords can be maximum 7.5 cm and should not have any knots, Toggle or 3D embellishment

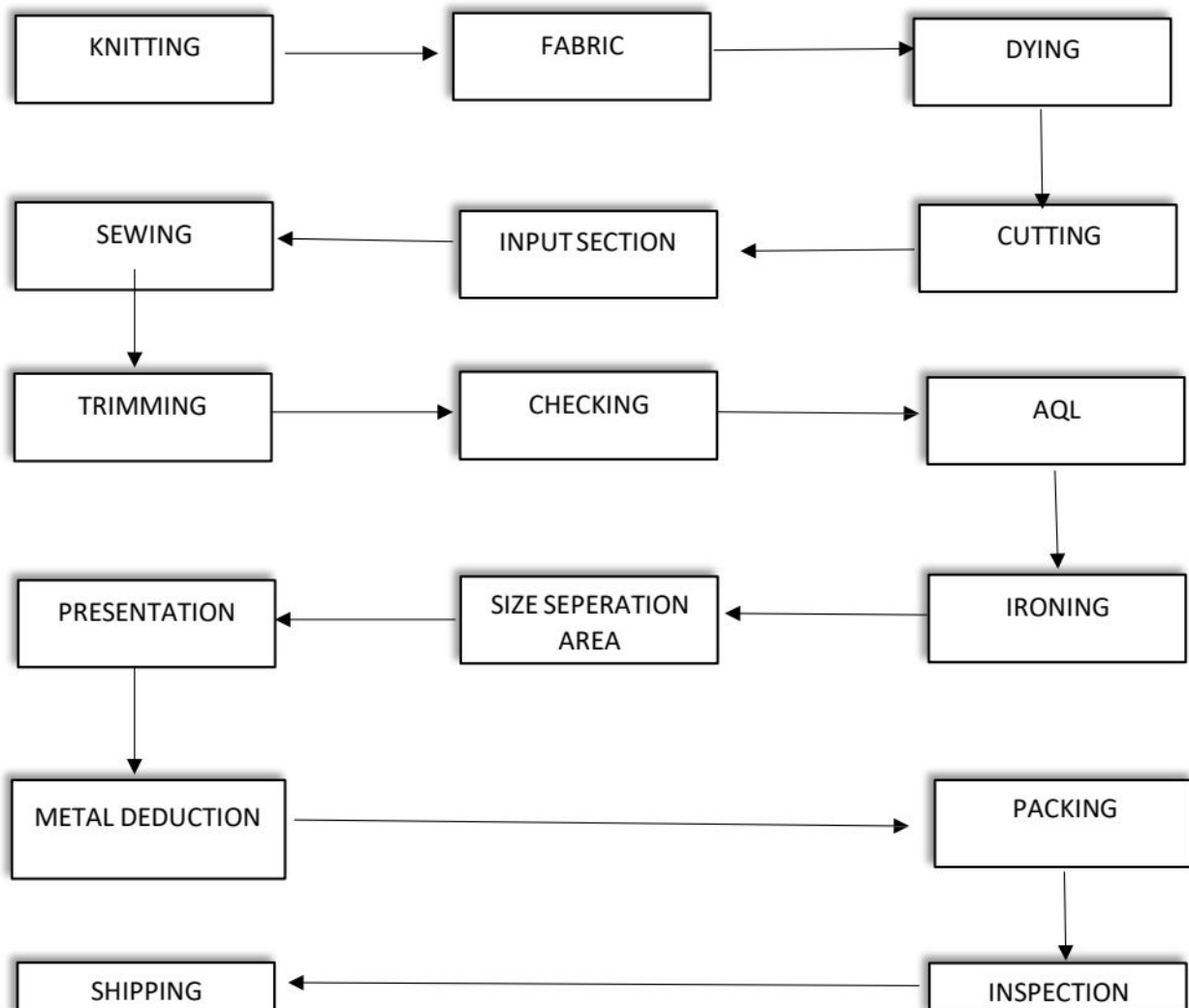
PRODUCTION PROCESS

The production process cares the reworking of variety of inputs into those outputs that are needed by the market. This involves 2 main sets of resources

1. The Reworking resources
2. The Works resources

The transforming resources embrace the buildings, machinery, computers, and other people that do the reworking processes. The reworked resources area unit the raw materials and parts that area unit reworked into finish product.

PRODUCTION PROCESS



KNITTING

Knitting is a methodology by which yarn is manipulated to form a textile or material, usually utilized in many varieties of garments. Knitting creates multiple loops of yarn, referred to as stitches, in a very line or tube. Knitting has multiple active stitches on the needle at just once. Cloth consists of variety of consecutive rows of intermeshing of loops. As every row progresses, a recently created loop is force through one or additional loops from the previous row, placed on the gaining needle, and also the loops from by using a machine.

FABRIC

The output of the knitting process is the fabric, the basic color of the fabric is the grey and it will be washed for the next process.

DEYEING

Dyeing is the process where the necessary color will be added to the material, and the quality of the color will be checked. Compacting will be done when a textile finishing machine that is intended specially for compacting 100% cotton knit like jersey, pique, interlock, plush, rib and sinker etc. Again, the fabric will be washed and tested.

CUTTING

The material is received in bundle and it'll be kept for a few relaxations at temperature. The fabric is unfolded regarding twenty layers. The planning that is needed are marked or printed in a cardboard sheet and this may be separated as several components and this may be placed on the layer and cutting process done. There are two types of knives used for cutting

- Straight knife
- Band knife
- scissors

Finally, stickering will be done to identify the size, part of the material.

INPUT SECTION

The stickered material will be in bundle and it will be placed in the storage area. the stock for 3 days work will be stored in this input section. From input section the materials will be passed to the production area.

SEWING

Garments are sewn in an assembly line, with the garment becoming more complete as it progresses down the sewing line. Sewing machine operators receive the materials in a bundle of cut fabric and repeated sew the same portion of the garment, passing that completed portion to the next operator.

For example: the first operator may sew the collar to the body of the garment and the next operator may sew a sleeve to the body. Quality assurance is performed at the end of the sewing line to ensure that the garment has been properly assembled and that no manufacturing defect exist. When needed the garment will be reworked at designed sewing Sections. This labor-intensive process progressively transforms pieces of fabric into designer

garments each operator work time will be calculated and it will be noted in a time format sheet.

$$\text{Efficiency} = \frac{\text{earn minute}}{\text{Available minute}} * 100$$

Earn minute = line output * SAM (Standard Allowed Minute)

Available Minute = man power * working hours

$$\text{Target} = \frac{\text{man power} * \text{working hours}}{\text{SAM}}$$

TRIMMING

The material part except main material that are employed in clothes are referred to as trimming. The materials employed in room apart from material are referred to as trims. On the opposite hand we can say that the materials are directly hooked up with material to create a garment are referred to as trims. Like threads, buttons, lining, interlining, zippers, labels etc.

CHECKING

A team starts to visualize clothes, whether or not sewing is correctly done or is there any spots on the garment. If they realize any spot, they take away it mis-treatment chemicals and if there's serious sewing drawback they come back it to stitching department to rectify a similar.

AQL

AQL (Acceptable Quality Level). It is the final checking process of the garment before the garment is sent to the Buyer, the checking includes garment quality and thorough inspection, direct inspection of regulations, duties. All procedural and quality requirements are met, the result or result of the final inspection is pass, and the garment is ready to be sent to the Buyer. But if it finds a critical point during the final inspection process, the garment is declared failed.

SIZE SEPERATION AREA

After the final check, the materials will be separated according to their size and arranged, if this is not done the garments will get collapsed with different sizes. The size can be separated by using the tag which is inserted at the inner side of the garment.

IRONING

Pressing or ironing is that the most important finishing method in readymade clothes sector that is completed by subjecting a fabric to heat and pressure with or while not steam to remove unwanted creases and to impart a flat a look to the clothes. Pressing or ironing additionally done to introduce creases within the apparel within the clothes producing industries, pressing is termed as ironing.

PRESENTATION

The final check of the material with the presence of the tag, seal, and overall material check will be done in this process.

PACKING

Garment packaging is that the method of wrapping, pressing, filling or making of products for the aim of protection and their acceptable handling. This is often the final method within the production of clothes that prepares the finished merchandise for delivery to the client. It's a very important part of the garment producing method. Garment packaging is additionally use to get ton of attention from the client.

CARTOON BOXING

Garments are delivered to the client in cartons. Clothes in poly baggage are kept in a carton box as per instruction of the client. Loading cartons with clothes are known as packaging. Clothes are loaded in cartons during a selected proportion of size and color. This proportion is termed assortment. Maintaining the selected assortment is very vital. It shows what sizes and colors should go with every carton. It's the need of a store of buyer's finish that the package is selected.

DESPATCH

Finally, the garments are ready to export with the satisfaction from the industry.

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ADL

TYPES OF INSPECTION

GARMENT DEFECTS CLASSIFICATION -

INDUSTRY MENTOR

DEPARTMENTS IN SCM GARMENTS

Mr S. SENTHIL KUMAR

PRODUCT AND COMPONENT SAFETY REQUIREMENT