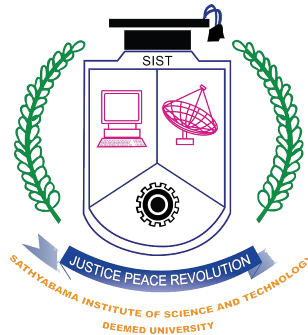


INTERNSHIP REPORT

**SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE AWARD OF
BACHELOR OF SCIENCE – FASHION DESIGN**

By

SOWMIYA.M (41105016)



**DEPARTMENT OF FASHION DESIGN
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

Accredited with “A++” by NAAC

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI – 600119

JULY 2023

SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF FASHION DESIGN

INTERNSHIP REPORT (S105AINT)

2023 – 2024

Name of the Student : SOWMIYA.M

Reg No : 41105016

Semester : V

Batch :2021-2024



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

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DEPARTMENT OF FASHION DESIGN

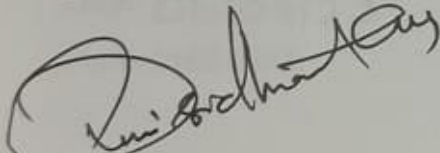
INTERNSHIP REPORT (S105AINT)

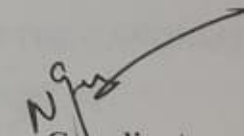
2023 – 2024

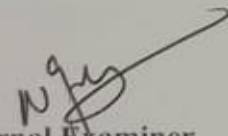
VIVA –VOICE EXAMINATION

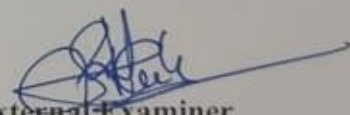
This is to certify that the Internship (S105AINT) is the work of SOWMIYA.M - 41105016, during semester V, is a student of the Fashion Design department had undergone training in SHAHI EXPORTS PVT LTD, has been monitored by the continuous assessment during 11/05/2023 to 03/06/2023.

Submitted for Viva Voice examination held on: 06/09/23


Mentor


Class Coordinator


Internal Examiner


External Examiner


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



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DECLARATION

I SOWMIYA.M hereby declare that the Internship (S105AINT) for 21 days from 11/05/2023 to 03/06/2023 done by me under the guidance of MR.K.S. RAVI SIDHAARTH, is my original work and is prepared based upon the data and information collected during my internship period is submitted in partial fulfillment of the requirements for the completion of practical training session.

Date: 06/09/23

Place: CHENNAI

SIGNATURE OF THE CANDIDATE

Sowmiya.M

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of **SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY** for their kind encouragement in doing this Internship and completing it successfully. I am grateful to them.

I convey my thanks to **Dr. DEVYANI GANGOPADHYAY** Dean, School of Building and Environment for providing me constant support and guidance. Your dedication to fostering a positive and nurturing academic environment has made a significant impact on my personal and professional growth.

I express my deep sense of gratitude to **Mrs. S. KRITHIKA** Head of the Department, Department of Fashion Design, School of Building and Environment, for providing me the assistance and knowledge at the right time during the progressive review.

I would like to extend my sincere gratitude to **Mrs. Mrs.SWAPNA NARRA** for giving me the chance to be a part of your esteemed organization and gain practical experience in the industry. I admire, the great opportunity that has provided to us and all the elements that made a contribution toward my understanding throughout this period

I would like to express my sincere and deep sense of gratitude to **Mr.K.S.RAVI SIDHAARTH** for her valuable guidance, suggestions and constant encouragement. I feel privileged to have the opportunity to be under your guidance, that paved way for the successful completion of my internship.

Last but not the least, I would like to thank all my **FAMILY MEMBERS, FRIENDS AND RELATIVES** for their support during the Internship period.

BONAFIDE CERTIFICATE FROM COLLEGE



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Ref: SHD/2023/04/24/58

24 April, 2023

BONAFIDE CERTIFICATE

This is to certify that **Ms. SOWMIYA M**, Register Number **41105016** is a Bonafide student of our Institution pursuing 2nd year **BACHELOR OF SCIENCE in FASHION DESIGN** during the academic year **2022-2023**. She will be completing the course in the year **2024**.

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

DEAN (STUDENT AFFAIRS)

Dr. G. SUNDARL 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.

MAIL REQUEST FROM DEPARTMENT TO COMPANY

<gayathri.design@sathyabama.ac.in>
wrote:

Dear Sir,
I am N. Gayathri, working as Assistant Professor in Fashion Design department of Sathyabama Institute of science and Technology. Students pursuing B.Sc. Fashion Design degree from our department needs to complete their internship for 21 days in their Second year as a part of their curriculum. we request you to kindly permit our students for their internship in your esteemed organization for 21 days from 11th May to 3rd June 2023. Kindly confirm your acceptance by mail.

please find attached students name list with their register number.

Sri Saranya V.M - 41105017

Deepthi. A - 41105002

Nivashini.M - 41105011

Sowmiya.M - 41105016

Best Regards

N. Gayathri
Assistant Professor
Department of Fashion Design
Sathyabama Institute of Science & Technology
Chennai - 600119

MAIL ACCEPTANCE FROM COMPANY

On Mon, 24 Apr, 2023, 3:07 pm T Murali Krishna, <murali.krishna@shahi.co.in> wrote:

Hi Gayathri,

You can send your students on the dates provided below for the internship, please.

Dear Mr. Sudhakar: Please permit the below persons please.

Regards
Murali

On Mon, Apr 24, 2023 at 2:03 PM
GAYATHRI N
<gayathri.design@sathyabama.ac.in> wrote:

Dear Sir,
I am N. Gayathri, working as Assistant Professor in Fashion Design department of Sathyabama Institute of science and Technology. Students pursuing B.Sc. Fashion Design degree from our department needs to complete their internship for 21 days in their Second year as a part of their curriculum. we request you to kindly permit our students for their internship in your esteemed organization for 21 days from 11th May to 3rd June 2023. Kindly confirm your acceptance by mail.

PERFORMANCE APPRAISAL

DEPARTMENT OF FASHION DESIGN

INTERNSHIP REPORT 2023

(Continuous progress report of the trainee for the period of 21 days in the industry to be submitted to HOD by the Trainee Incharge of the Organization)

1. **Name of the Industry** : Shahi Exports Private Limited
2. **Address** : CHM8+75W, IDA Nacharam,Secundrabad,Telangana
3. **Name of the student** : Sowmiya.M
4. **Duration** : 11-05-2023 to 03-06-2023
5. **Total No. of days** : 21 days

Evaluation of performance criteria shall be on

Note: Kindly grade the student as per her overall performance in the office during the assessment days, which will be converted to the allotted 40 marks by the department.

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of Department	✓				
Participation in the Industry		✓			
Handling the Given Work		✓			
Punctuality	✓				
Coordination With Other Workers		✓			
Oral communication		✓			
Attitude	✓				
OVERALL PERFORMANCE	Good				

Any other Remarks : Nil

CERTIFICATE

SHAHI EXPORTS PVT. LTD.

Regd. Office : F-88 Okhla Industrial Area, Phase-I, New Delhi - 110020
CIN-U18101DL2005PTC138730

Date:03.06.2023

TO WHOM IT MAY CONCERN

This is to certify that SOWMYA M from Satyabhama Institute of Science & Technology had undergone internship at our organization i.e., (11/05/2023 to 03/06/2023) duration of three weeks.

Her internship activity includes familiarization to all the departments and their operations and processes with the production process of the company.

She had majorly involved in an activity of complete "Production Process from Pre Production to Shipment", During the period of her internship program with us she had been exposed to different processes was found punctual, hardworking and inquisitive. We wish her every success in her life and career.

For SHAHI EXPORTS PVT LTD

For SHAHI EXPORTS PVT LTD

T MURALI KRISHNA
Authorized Signatory

GM - OPERATIONS

Correspondence Address:

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Narayanam, Hyderabad - 500076, Telangana, India

Telephone No:

+91 040-27150910, 27175960, 27175970

E-Mail:

delhi@shahi.co.in

INTERNSHIP DETAILS

1. INDUSTRY / ORGANIZATION: EHA SILKS

Mentor Name : Mrs. Swapna Narra

Designation of the mentor: Assistant general manager

Contact Number : 04027170960

**Address : Nacharam Road Number 12, Industrial
Development Area, Nacharam, Secunderabad,
Telangana 500076.**

2. INSTITUTION: SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

Mentor Name : Mr.K.S.Ravi sidhaarth

Designation of the mentor: Assistant Professor

Student Name : Sowmiya.M

Department : Fashion Design

**Address : Jeppiaar Nagar, Rajiv Gandhi Salai,
Chennai- 600119 Tamil Nadu, INDIA.**

DAILY REPORT

DATE	REPORT
11/5/2023	Fabric Department
12/5/2023	Fabric Department
13/5/2023	StoreRoom Department
15/5/2023	IE Department(Industrial Engineering)
16/5/2023	IE Department (Industrial Engineering)
17/5/2023	CAD Development/Training Department
18/5/2023	Sampling Department
19/5/2023	PPC Department
20/5/2023	Cutting and spreading
22/5/2023	Quality Checking
23/5/2023	Sewing Department
24/5/2023	Sewing Department
25/5/2023	Sewing Department
26/5/2023	Finishing Department
29/5/2023	Washing Department
27/5/2023	Packing Department
29/5/2023	Sampling Department
31/6/2023	Visited All Department
01/6/2023	Visited All Department
02/6/2023	Visited All Department
03/6/2023	Visited All Department

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1.Introduction

The report is on garment manufacturing process in Shahi exports, Hyderabad. This report is made on practical knowledge on how garment are made, what are the procedure followed etc.

This report is made by observing, discussing with related people, taking information from files analysis standard of Shahi. In this report I discussed about different departments in garment industry, how department are interrelated and what is the work flow etc. So I hope this report gives a complete information on garment manufacturing.

1.1. Company Profile:

Shahi is the largest apparel manufacturing company in India having a huge number of well - equipped apparel factories in India. They are one of the leading ladies' apparel manufacturers in India.

Shahi Exports specializes in the production and export of a wide range of garments, including men's and women's clothing, children's wear, and home textiles. The company works with several renowned international brands and retailers, providing end-to-end solutions for their apparel needs.

With a strong focus on quality, innovation, and sustainability, Shahi Exports has established itself as a reliable and preferred partner for global apparel brands. The company operates a large number of manufacturing facilities across various locations in India, equipped with state of-the-art infrastructure and technology.

In addition to manufacturing, Shahi Exports also emphasizes social and environmental responsibility. The company is committed to ethical business practices, fair labor standards, and sustainable production methods. They have implemented various initiatives to promote worker welfare, gender equality, and environmental conservation.

Shahi Exports has received several awards and recognition for its contributions to the apparel industry and sustainable practices. The company's commitment to excellence, customer satisfaction, and responsible manufacturing has positioned it as a leading player in the Indian textile and garment export sector.

Shahi Exports is known for its vertically integrated textile operations and high-end, value - added services, which place it at the cutting edge of innovation in the apparel industry. The company has strategically positioned itself to provide a comprehensive range of services, starting from raw material sourcing to the delivery of finished products.

Shahi Exports offers high-end, value-added services to its clients. These services include design and development support, product innovation, trend forecasting, and supply chain management.

By providing these services, Shahi Exports becomes a strategic partner to its customers, helping them stay ahead in a competitive market and meet the evolving needs of consumers.

1.2. Founding and Early Years of shahi exports:

Shahi Exports mark the inception of a remarkable journey in the textile and apparel industry. The company was established with a vision to excel in the global market and revolutionize the way garments are manufactured and delivered. The exact founding year of Shahi Exports dates back to 1974 when it started as a small fabrication unit.

What began as a modest venture soon gained momentum and expanded its operations rapidly. Under the visionary leadership of its founders, the company embarked on a path of continuous growth and innovation.

During its early years, Shahi Exports focused on establishing a strong foundation for its business. The company built its reputation on principles of integrity, quality, and customer satisfaction. With a commitment to excellence, Shahi Exports soon gained recognition for its craftsmanship and reliable service.

As the demand for its products grew, Shahi Exports recognized the need to enhance its manufacturing capabilities. The company invested in advanced technologies and infrastructure to streamline production processes and meet the evolving needs of its customers. This strategic approach enabled Shahi Exports to establish itself as a trusted partner for renowned global brands and retailers.

The founding and early years of Shahi Exports laid the groundwork for its future success. The company's dedication to innovation, ethical practices, and customer-centric approach set the stage for its transformation into one of India's leading textile and apparel exporters.

Throughout its journey, Shahi Exports has placed a strong emphasis on social and environmental responsibility. It has implemented initiatives to empower its workforce, promote fair labour practices, and minimize its ecological impact. The company has established training centers to enhance the skills of its employees, contributing to their personal growth and development.

With a steadfast commitment to innovation, sustainability, and customer satisfaction, Shahi Exports has emerged as a key player in the global textile and apparel industry. Its remarkable growth and success can be attributed to strong leadership, a dedicated workforce, and an ability to adapt to changing market demands.

Today, Shahi Exports stands as a leading textile and apparel manufacturer, serving a diverse customer base worldwide. It continues to shape the industry with its unwavering dedication to quality, social responsibility, and technological advancements.

1.3. Production Facilities :

The expansion of production facilities refers to the process of increasing the capacity and capabilities of manufacturing units within Shahi Exports. It involves the establishment of new manufacturing units or the expansion of existing ones to accommodate the growing demand for the company's products.

Shahi Exports has witnessed significant expansion in its production facilities over the years to meet the increasing market demands. The company has strategically invested in setting up manufacturing units in multiple states across India, including Delhi, Haryana, Uttar Pradesh, Tamil Nadu, Karnataka, and Andhra Pradesh. This decentralized approach allows Shahi Exports to leverage regional advantages, such as skilled labor and access to raw materials.

The production facilities of Shahi Exports are equipped with state-of-the-art technology and modern machinery. The company has embraced advanced manufacturing practices, including assembly line machines, the Prima Vision system for print and fabric development, Meyer fusing press, Barudan and Tajim Multi-head computerized embroidery machines, in-house washing plants, and automatic cutting machines.

The expansion of production facilities also includes the establishment of specialized divisions within the manufacturing units. Shahi Exports has a dedicated sampling division where experienced designers create high-quality patterns, designs, and styles. Additionally, the company has training centers in Faridabad and Bangalore to train and develop skilled tailors, ensuring a competent workforce for efficient operations.

Through the expansion of production facilities, Shahi Exports has been able to increase its manufacturing capacity, improve operational efficiency, and meet the diverse needs of its customers. The company's commitment to investing in modern infrastructure and technology has positioned it as a leader in the textile and garment industry, both in India and globally.

1.4. Social and Environmental Responsibility:

Shahi Exports has a strong focus on social and environmental responsibility. The company recognizes the importance of sustainable practices and ethical business operations. It strives to minimize its environmental impact by implementing energy-efficient technologies, waste reduction measures, and water conservation initiatives in its production processes.

Additionally, Shahi Exports places great emphasis on the well-being and development of its workforce. The company is committed to providing a safe and healthy working environment for its employees. It promotes fair labor practices, offers skill development programs, and ensures equal opportunities for all its workers.

Shahi Exports actively engages in community welfare initiatives. It supports various social causes such as education, healthcare, and women empowerment through its corporate social responsibility programs. The company aims to make a positive impact on society by contributing to the overall well-being of the communities in which it operates. shahi exports Innovation and Technological Advancements:

Shahi Exports is known for its focus on innovation and technological advancements in the apparel industry. The company continuously seeks ways to improve its manufacturing processes, enhance product quality, and deliver innovative solutions to its customers.

One area where Shahi Exports excels is in the adoption of advanced technologies. The company invests in state-of-the-art machinery and equipment to streamline its production operations and optimize efficiency. It leverages automation and digitization to improve accuracy, speed, and precision in various stages of the manufacturing process.

Moreover, Shahi Exports emphasizes research and development to drive innovation in its product offerings. The company actively explores new materials, techniques, and designs to stay ahead of industry trends and meet evolving customer demands. It collaborates with designers, fashion experts, and technology partners to create unique and cutting-edge products.

In addition, Shahi Exports embraces digital transformation to enhance its business operations. It utilizes advanced software systems for inventory management, supply chain optimization, and customer relationship management. These technological advancements enable the company to streamline processes, improve productivity, and deliver enhanced value to its customers.

1.5. Achievements:

□ **Global Presence:** Shahi Exports has established a strong global presence with manufacturing units in multiple states of India, including Delhi, Haryana, Uttar Pradesh, Tamil Nadu, Karnataka, and Andhra Pradesh. They have also expanded their operations to other countries, including Ethiopia and Bangladesh.

□ **Large Workforce:** With over 55,000 employees, Shahi Exports is one of the largest apparel manufacturers in India. Their skilled workforce plays a crucial role in maintaining high production standards and delivering quality products.

□ **Diverse Product Range:** Shahi Exports offers a wide range of products, including men's and women's apparel, as well as home products. Their diverse product portfolio caters to different market segments and customer preferences.

□ **Quality Recognition:** The company has been recognized for its commitment to quality. Shahi Exports has received accolades for maintaining high product standards and has been ranked as one of the best in Asia by renowned retailers like J.C. Penney.

□ **Technological Advancements:** Shahi Exports embraces innovation and technology in its manufacturing processes. The company invests in advanced machinery, automation, and digital solutions to enhance efficiency, precision, and productivity.

□ **Social and Environmental Responsibility:** Shahi Exports places a strong emphasis on social and environmental responsibility. They have implemented sustainable practices, including water and energy conservation, waste management, and fair labor practices. The company has received certifications for its responsible and ethical manufacturing processes.

□ **Partnerships with International Brands:** Shahi Exports has established successful partnerships with renowned international brands and retailers. Their collaboration with global brands demonstrates their expertise and ability to meet the quality and compliance requirements of prestigious customers.

Present buyer at Shahi Exports, Hyderabad:



Figure. 1 JCPenney



Figure.2 Kroger



Figure.3 H&M



Figure.4 C&A



Figure.5 AtLast

2. Fabric Department:

- At a point in the Fabric Store, fabrics are unloaded the packing slip is used to verify the details of the intended fabric, such as the amount on the invoice and the quality of the shipment.
- The cloth is kept at the site where it is received.
- The maximum inventory at the time of planning is 10 days, whereas the inventory for the fabric is 7 days.
- The GRN (Good Received Note) number is generated when the system has been updated with the fabric's data from the receiving site.
- The process of entering a bill into the system using the GRN number and the roll meterage is known as GRN entry.
- The Fabric Inspection procedure begins following GRN entry.
- The fabric is feed on the shade lotting table, > Fur Shrinkage, a swatch of 25" is cat (10% rolls will inspected.
- In of other fabrics ch as Rayon, Denim, Tencel 100% will he inspection,these swatches are given at the shrinkage table.
- The Swatch is cat an per the shrinkage template of 50 cm x 50 cm. Marking on the swatches se 35 cm x 35 cm along the sides interaction is done.
- Every swatch mentioned try the Item No. Roll N., and Display Quantity and will be sent to washing Washing followed by streaming is performed.
- After the whole process, the Shrinkage/Elongation is measured which is updated in the system and then the percentage is calculated,the shrinkage report is purpose.
- A sample of 25"-long (10% cat) rolls will be examined after the fabric is fed onto the shade lotting table.
- He will do an inspection of different textiles, such as 100% Rayon, Denim, and Tencel.
- The shrinkage table provides these swatches. The Swatch is manufactured using a shrinkage template measuring 50 cm by 50 cm.
- The swatches are marked with the measurements 35 cm x 35 em along the sides of the interaction.
- Each sample listed should be tested for the item No. Roll N., Display Quantity, and washing, the washing is followed by the streaming.

- Following the entire procedure, the shrinkage/elongation is measured, updated in the system, and the percentage is then computed. Intention behind the shrinking report.

2.1. Acceptance level:

Greige fabrics

20 Points Per 100 Sq MTS

MILL Made fabrics 25 Points per 100

Power LOOM Fabrics Sq, HTS

44 Points Per 100 Sq, MTS

2.2. Fabric inspection 4 Point-System:

up to 3in - 1 Point

up to 6 in 2 Points

up to 9in 3 Points

Over 9 in- 4 Points

2.3. Fabric checking machine:

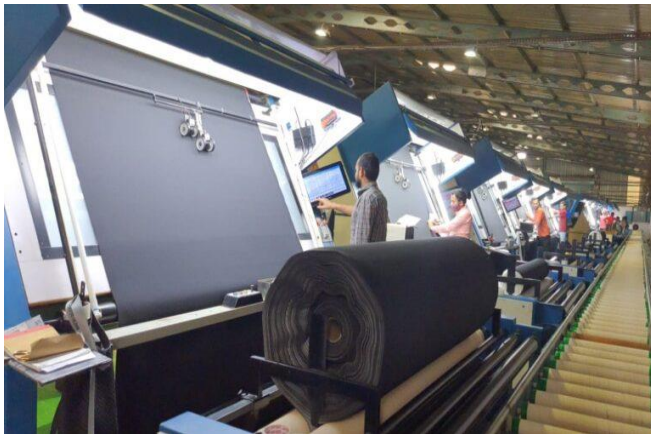


Figure.6 4-Point Inspection

- This will also measure the meter in fabric. Fabric Inspection Machines can be used to inspect a variety of fabric types, including woven fabric, knitted fabric, and other forms of fabric, in any condition of the fabric (roll/plaited/A-frame to roll/plaited/A-frame).
- Additionally, verify the fabric's flaws using lights. SUNTECH Fabric Inspection Machines can offer customization to meet the needs of the customer.

- Fabric inspection machines are used to check fabric materials for manufacturing flaws (weaving), mechanical flaws (holes), and soiled areas.
- Inspection equipment has a lit panel under the material for the operator's convenience.

Printed - 5 meter per minute

YID checks - 10 meter minute

Solid - 10 meter per minute

Cerise - 20 meter per Minute

Machine speed	Number of points
Printed - MTR Per Min	1
Y/D Checks - 10 MTR Per Min	2
Solid - 10 MTR Per Min	3
Greige - 20 MTR Per Min	4

Table 1

M/C speed = 12 meter for all fabrics.

2.4. Length of the defect:

Up to 3

3 – 6

Above 9 holes

2.5. Shrinkage Checking:

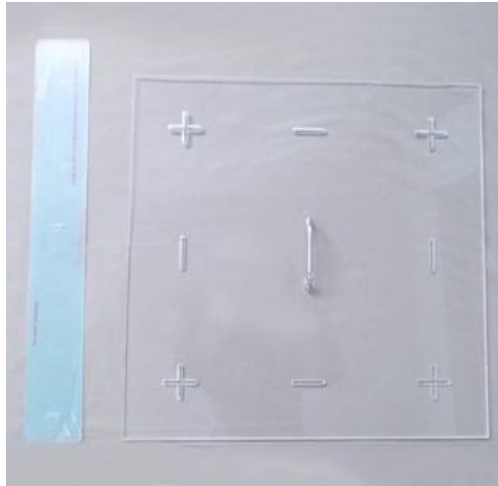


Figure.7 Shrinkage Template

During the visual fabric inspection, a reference sample of the approved fabric in each colorway must be on hand. Swatches must be at least 10 x 10 inches (25 x 25 cm) in size and accurately represent the preferred look, hand, and feel.

2.6. Shade checking:

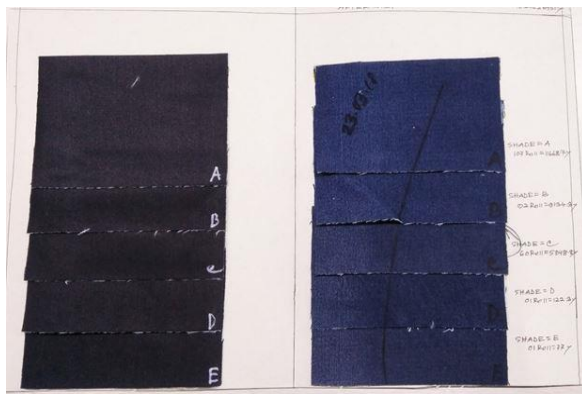


Figure.8 Shade Continuity Card

The shade number was provided by someone who is part of the textile industry. In exports, they already provided a shade number. They each placed a piece of fabric in a single order. The buyer informs shade b that the start of the fabric inspection.

2.7. Shewing/Bowing

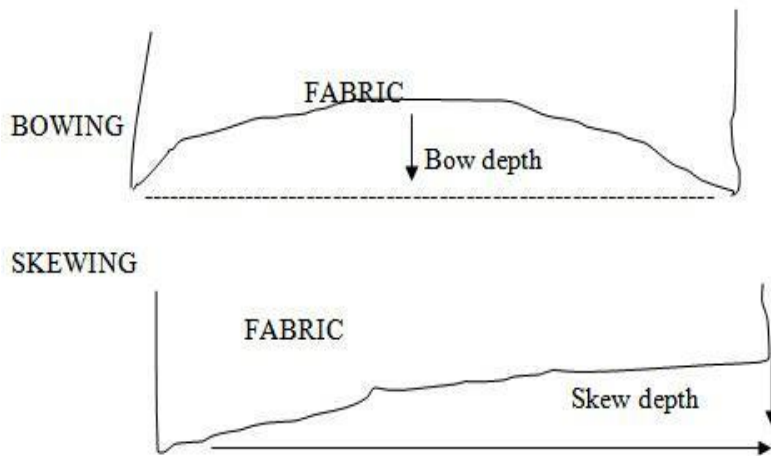


Figure.9 Bowing and Skewing

Rolled exceed the following tolerance that failed.

Fabrication	Woven	Knits
Solid colors	3%	5%
Stipes/Yarn dyes	3%	5%
Prints	3%	5%

Table 2

- The fabric's selvedge is kept parallel white a 25" swatch is cut.
- The fabric's selvedge are connected by a perpendicular line.
- To determine the angle of the thread that came out, a yarn is pulled from the drawn perpendicular line.
- Bowing and skewing are terms for the greatest and lowest distances, respectively, between the perpendicular line and the yarn pulled out.

2.8. Fabric checking:

Rolled fabric -checking in machine [Fabric checking Machine].



Figure.10 Rolled Fabric

Folded fabric - Person check in table.



Figure.11 Folded Fabric

2.9. Approval fabric reference

During the visual fabric inspection, a reference sample of the approved fabric in each colorway must be on hand. Swatches must be at least 10 x 10 inches (25 x 25 cm) in size and accurately represent the preferred look, hand, and feel.

2.10. Approval fabric checking:

The color, texture, design, and line in bully fabric and approval fabric are verified, and testing is done outside of the industry. Only exports were given the checked fabric at that line.

2.11. Roll Ticket Information : (Bar code):

- Supplier name
- Fabric description
- Roll length
- Fabric content
- JCP jenny color standard name and no

- Roll number
- cut-table width
- Production lot
- Shade

2.12. Fabric process let reports:

- Cutting's flammability.
- Fabric thickness of woven material.
- Fabric dimensions vary after returning home.
- Ripping the weft and strength wrap.
- Grasping test for breaking strength.
- Resistance to yarn shipment.
- Color accelerates croaking. Breakage of sewing thread (with or without fabric heaping).
- Seam transport. appears following a level a quick way for color fastness that won't bleed cholesterol.
- Color will take to chlorine bleach quickly technique.

2.13. Inspection equipment:

- 1075 lux lighting
- Flat variation
- Meter/yard age color

2.14. Inspection procedure:

- Above 1,000 meter fabric we have to check 10% of the fabric. We received less than 1,000 or 1,000 meter. We have to check 100% of the fabric.
 - Supplier should check before 100% of the fabric disported.
 - And the proper document (quality reports)
- Color continuously:
- Color continuously is to purpose the sample fabric on the another.

On shade lotting table:

Cutting of swatches for shrinkage is with- 10% roll.

Rolls:

L.W.V - Length wise shade variation.

How to check.

1st Meter ☐ swatches

3rd Meter ☐ swatches

6th Meter ☐ swatches

7th Meter ☐ swatches

2.15. Defects of tolerance:

Points calculation:

$$\text{Points/100yd}^2 = \frac{\text{points x 3600}}{\text{Cut-table width in inches} \times \text{Yards inspected}}$$

$$\text{Points sq yard (actual poundage)} = \frac{\text{Points x GSM x actual width x 0.1843}}{\text{Actual Poundage of role x Cut-table width}}$$

2.16. Acceptance point count:

Group number	Fabrications	Points per 100	
		Max points per roll	Max points per shipment
1)	Dress shirting worsted fabric.	15	12
2)	Woven shirting, woven synthetic twill tailored suiting.	20	15
3)	Basic knits, specially knits, flannel, chambray, chambray, velvet, jacquard	25	20

	denim and rayon challis.		
4)	Linen, linen blends slub jersey silk, India power 100m	30	25

Table. 3

2.17. PROCESS IN FABRIC DEPARTMENT:MAIN CHECKING PROCESS

- Shade
- Shrinkage
- Visual Inspection
- Printed should checking, CSV, LSV.
- GSM- Common

2.18. Fabric inspection report:

Buyers requires the following information to be included on the fabric inspection report.

- Inspection date
- Fabric PO (Purchase order)
- Garment supplier
- Fabric mill reference
- Fabric description
- Color name
- Shade
- Dye lot name
 - Ticked and
 - Actual
- Cut-table width.
 - Ticked and
 - Actual

- Bowling/Skewing
- Total points in roll
- Result: Pass or Fail
- Total Yards inspected
- Total rolls inspected

2.19. GSM Cutter:



Figure.12 GSM Cutter

- Cut the fabric in round shape.
- 5 Sample in each shade.

2.20. GSM weight machine:

- Fabric will be cut with 5 samples from each of the four hues (A, B, C, and D) for verifying GSM.
- Samples should be 5 by 5 inches, and each one should have the terms T-Taka, No., and GSM.
- Five samples from each taka should be collected.
- Both washed and unwashed.
- The term "weight of a fabric" is "grammars per square metre," or GSM.
- The higher the GSM of a fabric, the thicker and more durable it is generally expected to be.
- Take five separate pieces of fabric and cut them for samples.
- Accurately weigh each test swatch and calculate the swatches' average weight.
- To figure out the GSM of the sample fabric, multiply the average swatch weight by 100.

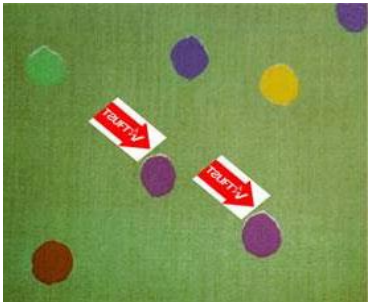
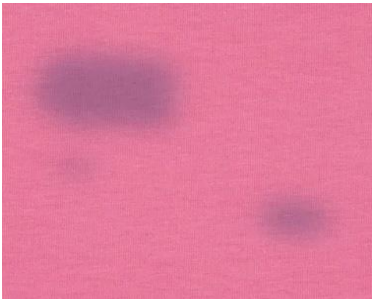


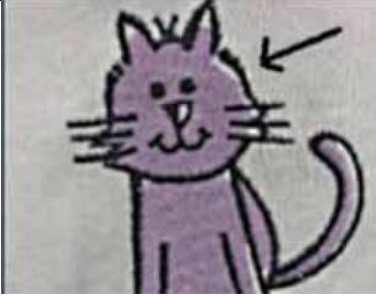
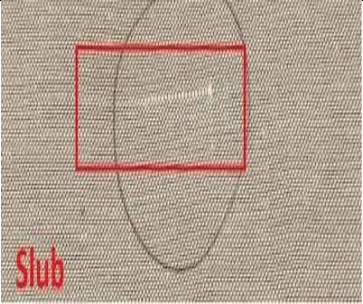
Figure.13 GSM Weight Machine

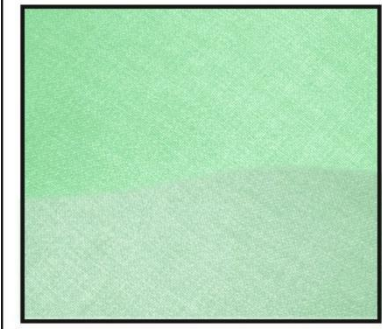
- Size of sample (fabric)
- Weight
- GSM
- Taka (Bundle)
- Wash fabric checked separate.
- Non - wash fabric checked separate.

2.21. Fabric Defects:

Design out	 Figure.14 Design out defect
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Miss print	 Figure.15 Miss print defect
Print stain	 Figure.16 Print stain defect
Contamination	 Figure.17 contamination defect
Yarn pull	 Figure.18 yarn pull defect

Hole	 Figure.19 Hole defect
Stop mark	 Figure.20 Stop Mark defect
Slub	 Figure.21 Slub defect
Miss yarn	 Figure.22 Miss Yarn defect

Lace damage	 Figure.23 Lace damage defect
EMB placement	 Figure.24 EMB Placement defect
Distortion	 Figure.25 Distortion defect
Shade variation	 Figure.26 Shade variation defect

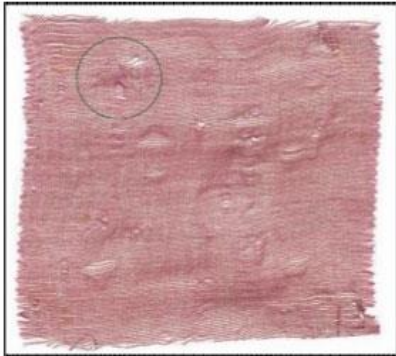
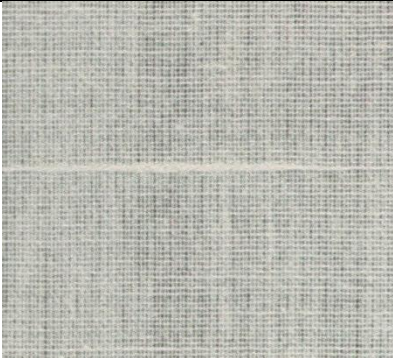
Crease mark	 Figure.27 crease mark
Miss EMB	 Figure.28 Miss EMB defect
Thick yarn	 Figure.29 Thick yarn defect

Table. 4

3. Trims and accessories department:

- Trims card
- Hang tag/pocket flasher
- Laces/tapes
- Zipper
- Buttons and
- Other

- Trims QA visual inspection trims made in accordance with SOP slashes the inspection report, to give commercial advice to business people.
- Trims QA continuous 100% quality verification is successful.
- Separate the quality into pass and fail rejects and completely reject the quality.

3.3. Check list of accessories and trims:

Trims	Check point
Main label	Letter color, language, label, code no, supplier, label size, material quality.
Stitches/UPC Tague	Order no, style no, bar code no, scanner reading, price, country code size, material color and sticker.
Wash care/Label	Wash care instruction, language, supplier no, care symbols, label size and material quality.
Buttons	Material quality, Ligne (size), Number of holes, color matching, color fastness on contrast color design.
Binding/Neck tap	Fabric quality, color matching, color fastness, rubbing on contrast color.
Snap/grippers	Color matching, material color fastness, after attaching presser, size material quality and pull test.
Swift tags	Order no, style no, buyer name, country code size, card quality and price.
Other label	Label color and material quality
Hang tags	Order no, style no, color no, scanner and reading price, material color and sticker on card quality.
Shoulder top	Tap stability material, quality, mobilan tape, stretch ability relaxation and tearing strength.
Contrast fabric	Color fastness and rubbing material quality.

Poly bag	Size width, length, quality, gauge warning instruction and any instruction given by the buyer.
Poly bag stickers	Order no, style no, stickers, reading, size, scanner and material color.
Hangers size	Size, color, material and clip quality.
Ornamental/embroidery	Embroidery thread color, shade no, counts ply, color fastness and rubbing on contrast.
Interlining	Material/quality fusing fire ability based on the temperature, pressure & gumming and color.
Hangers	Material, hanger size, color and quality.
Cartoon	No. of poly, bursting strength and gumming at comes.

Table. 5

3.4. AQL Chart:

- Lot size of quality being United.
- Accept
- Inspects.

4. Sampling department:

- In the sampling department, work is done to see how the product will seem when produced in bulk and to determine whether there are any design variations made in response to customer demands. Sampling is a phase of the early stages of product development.
- A pre-production meeting is held if the order is accepted.
- The company receives the tech-pack from the vendor at the head office, together with the sample file and the order details file from the customer.
- Patterns are created in the head office's CAD Department in accordance with the files and samples that have been received, and after they are finished, they are given to this section.
- The designs that were sent and the sample are currently being checked to see if the measurements and received components are accurate or not.
- The patterns will be submitted back to the central office if revisions are necessary.
- The last patterns have been confirmed.

- All requirements, including fabric meter, are structured for size-set cutting.
- Samples of mock-ups are created both before and after shrinkage.
- The size set is made in accordance with the tech-pack/style specifications.
- The size set is assessed. If it passes, the size set's component parts are addressed in the PPM (Pre-production Meeting), and the cutting department is given the necessary instructions. If it doesn't work, new patterns are developed.
- Following the buyer's acceptance of the patterns, three samples are created. Three samples are sent: one to the buyer, one to the head office, and one to the industry.
- The customer has approved the sample, and the item is now tagged as a Gold Seal Sample and prepared for production.
- The cutting department makes the necessary preparations for the pilot run.
- Pilot pieces are cut according to the order quantity.
- Review and analysis of the pilot run are done.
- If the pilot run is successful, the style can move into mass production.

4.1. RTS - Red tag sample.

- A sample with a red tag is an identification of a sample that buyer had approved and sealed that particular sample for production.
- A Sealed sample means approved garment construction, approval trims attached to the garment.
- Receiving a red tag sample from buyer is the approval for production go - ahead to the factory.
- Buyers attach coloured tags to approved sample and send back to the suppliers.
- Once attached these tags can not be removed easily from the samples garment.



Figure.31 Red Tag Sample(sealed)

- Sealed sample with read tag.

- Tag is attached to a sample so that supplier can not replace sealed.
- Sample or can not show any other garment as an approved sample.
- Tags to attachment to sample is referred to in production.

4.2. Size set sample:

- Size set samples serve the primary function of evaluating the factory's capacity to produce the samples in all sizes by requiring that clothing be created in all sizes before being sent to the buyer.
- For the size set samples, real fabric and trims must be utilized.
- For each size, the customer chooses the amount that will be shipped.
- When a customer requests to skip some sizes because there are more sizes than there are available, the product is known as a Jump Size set sample. In addition to GPT samples, this sample can be produced.

4.3. Pilot run sample:

- Before the real bulk production, 2-5% of the entire manufacturing quantity is created in a separate sewing line with the aim of reassuring the customer about the factory's true capacity for bulk production.
- A trial production run can be used to describe the pilot run.
- After the PP sample has been approved and before bulk cutting, a trial run is conducted.
- If the customer requested it, the pilot run for a style (order) is carried out. Numerous clothing manufacturers have made pilot runs a routine practise.
- Regardless of the needs of the customer, Pilot runs are required in those businesses for all styles.
- Pilot run in clothing manufacturing For the trial run, the clothing maker cut between 100 and 200 pieces of each type.
- The factory adheres to all the order-specific procedures in full. Production for the pilot run is carried out as it will be for the bulk production, and the factory sets up the stitching line.
- Considering these things before flying a pilot Instead of being handled in the sample area, pilot must be handled in the manufacturing line.
- Although the factory might choose to cut jump sizes rather than all sizes, all colors and sizes are included in the pilot amount.
- If the customer requests a pilot run, buyer quality assurance may examine the pilot run items. When completing in bulk, pilot run pieces are provided with the shipment if there are no deviations from the buyer's quality requirements.

4.4. sampling process flow:

- Sample and Direction File delivered by OAD/PPC.
- Received the final pattern from CAD/PPC.
- For size set cutting, all requirements, including fabric meter, are organized.
- Size Set cutting using the graded patterns you received with the extra shrinkage.
- Size employing a set according to the tech pack or style.requirements
- Size Register Cutting Set. Size Set Analysis Sizing Set Evaluation Report.
- If necessary, patterns are modified.
- Technical Manager, QA Tech, and DQA. Set size PPM discussions include comments, and cutting PPM Report instructions are provided.
- The necessary preparations are made in cutting for the cutting of pilot pieces by the cutting manager.
- As Production Manager, cut and make (100-500 pesos) depending on the size of the order.
- QA/QA Tech for sewing, Analysis and review of Pilot Run writings.
- QA Tech, CA Tech Pattern Master, and sampling change.
- If necessary, a small modification to the pattern is made owing to shrinking.
- After receiving approval, the final redesigned pattern is forwarded to cutting for mass production report about Pilot Run.

4.5. Samples operator:

- Sew the clothes in accordance with the supervisor's directions to ensure a high-quality product.
- Follow the OC directions. accountable for ensuring that safety procedures are followed in accordance with job standards.
- Required to occasionally contribute to the implementation of environmental health and safety as directed Post this on the bulletin board, uphold a high standard for sewing.
- To examine the sewing machine's condition and the oil biting job.
- To continue exercising self-control.to keep up with housekeeping.
- To report any sewing-related issues to the supervisor or in-charge of production.

4.6. Helper:

- As directed by the seniors, iron the part samples.
- Support the operators, cutters, and assistant patters musters.
- It is their duty to advertise and make sure that all safety procedures are followed.
- To ignite in the direction of the environment and health.
- From me in time in accordance with the directions shown on the mode.
- To keep one's self-control.to continue keeping the house Must provide accurate information to the Production Supervisor.

4.7. MANAGER/DEPUTY MANAGER ASST MANAGER:

- It is their responsibility to work with the sampling department to schedule sampling according to the production plan.
- This is charge of checking the tech pack, patterns, and final approvals.
- IE and quality responsibility for product viability should be discussed in coordination with the production team.
- To coordinate with the buyer's technical and QA, if applicable.
- To make sure that samples are submitted on time and are approved the first time by the buyer.
- To examine the chart for the sample measurement review and the shrinkage report as well as the marker report.
- To work with CAD marker cutting. to make certain that everyone on the team.
- To all safety requirements and used personal protective equipment when necessary to occasionally assist with implementing environmental health and safety as directed by the display Maintaining the 5S is your responsibility.
- The quality aim or goal must be met, and it must be monitored daily. If not, corrective and preventative action (CAPA) must be taken.
- The department implements, maintains, and is accountable for the QMS.

4.8. Cutter:

- Cut size set sample as per instructions given by sampling incharge.
- Responsible to adopt the ensure all safety precautions are adhered to as per their job requirements.
- Required to contribute towards environmental health & safety implementation from time to time as per instructions displayed on the notice board.

- To maintain self-discipline in the work of the notice board.
- To maintain the cutting is done exactly as per the pattern, and unwanted waste is not generated.
- To make sure that fabric is approved for a particular style.
- To report to the supervisor regarding the events that took place while working.
- Minimum requirements, education knowledge, capable of reading and writing English and Kannada.
- Cut the sample to the size specified by the sampling in charge.
- Responsible for ensuring that all safety precautions are followed in accordance with their job requirements.
- Required to occasionally contribute to the execution of environment, health, and safety as directed by the notices posted on the notice board to keep one's self-discipline in check while working on the notice board.
- In order to preserve consistency, cutting is carried out exactly as directed by the pattern to confirm that the fabric is acceptable for the desired style must inform the supervisor of any incidents that occurred while you were working.

4.9. Assistant pattern making:

- Verification of the size of the size set patterns from HO.
- Help the senior executive with sampling.
- As directed by the senior executive sample, distribute patterns to sample cutters and operators.
- Before releasing the hard designs to the cutting and sewing department, seal and sign all of the parts.
- Send the cutting and sewing department the approved patterns per the request made by the relevant party.
- As required by their jobs, it is their responsibility to adopt and ensure that all safety procedures are followed.
- It is necessary to occasionally contribute to the implementation of environmental health and safety regulations in accordance with the instructions posted on the notice board.

4.10. Sampling supervisor:

The timely production of samples in accordance with customer specifications, responsible for attending the departmental meeting, taking notes, and making sure the opinions are incorporated, accountable for gathering.

5. CAD:

- To approve all markers and patterns after making sure they are responsive and comprehensive in every way.
- To keep an eye on every step of the process for all styles, from bulk cutting through product development.
- Must make sure that intake stays within the range recommended by experts.
- To guarantee sure that any necessary changes are performed in accordance with the OAD analysis or size set evaluation report. Give marketing and sourcing advice on where to place designs for printed fabrics.
- To guarantee organized development and departmental coordination.
- To confirm that the appropriate number of people has been assigned to each team, including pattern masters, digitized graders, manufacturers, etc.
- The patterns for the style along with the grading are sent from the Head Office through mail.
- The software used for marker making in the CAD department is OPTITEX and all the changes and updating of the patterns is done in this software.
- The marker is prepared using the patterns received and it is given to the sampling department for the Size set verification.
- The mock up Samples are prepared to observe shrinkage and elongation differences of the PP sample and the pattern received.
- The differences in the percentages are updated in the optimize software on the patterns and again size set verification is done.
- The YY consumption report is prepared after the sampling process is done, after the approval of the sample developed.
- From the head office, mail is used to deliver the grades and patterns for the style. All modifications and updates to the designs are made in the OPTITEX software, which is utilized for marker creation in the CAD department.
- Utilizing the provided patterns, the marker is created, and it is then delivered to the sample division for size set verification.
- The dummy Samples are made in order to compare the shrinkage and elongation of the PP sample to the obtained pattern.
- On the patterns, the percentage discrepancies are updated in the Optimize programme, and size set verification is carried out once again.
- The cut plan is created for the available fabric, and a request is submitted to the supplier for the extra fabric if the real fabric amount is higher than the obtained fabric quantity.

- The order will be closed if the supplier is unable to supply the remaining fabric amount and the shipment has already left the dock.
- A size-wise ratio for the lay plan is created following the creation of the cut plan.
- The number of lays are made with the ratio in mind as the highest amount of that particular size. Depending on the type of cloth, 100 or 120 plies are the most that can be taken into consideration.
- Based on the size and number of plies ordered, and the number of lays is created. Making markers occurs following the creation of the lay plan.
- The fabric type determines the marker's width, and where the graded pattern is placed on the marker determines its length.
- The marker has been created, taking into account CSV and Non - CSV textiles.

Instead of the marker type, the CSV is mostly taken into account while creating markers.

- For the purpose of making CSV markers, all patterns of the same size are grouped together to prevent color variance (this is true regardless of the print style).
- Automatic marker creation is also possible for non - CSV markers.

5.1. Plotter machine:



Figure.32 Plotter Machine

- All MCAD and construction applications, such as technical drawings, maps, and renderings, employ plotters.
- A large format HP plotter printer can be useful in any application that benefits from clear text and accurate lines on a larger, single-sheet output.
- With the use of a plotter machine, markers of various sizes can be printed on sheets and then cut off.
- By Remington-Rand in 1953, the first plotter was produced. Technical drawings were created using it with the UNIVAC computer.

- Plotters are specialized items of machinery made to print out vector images in a variety of colors. For their capacity to enable you to make various designs, three types of plotters are most popular.

- Printers, monitors, speakers, plotters, and other devices are examples. When printing vector graphics, a plotter is the type of printer utilized.

- It receives data from computers and prints it out on paper. That makes it an output device.

6. Spreading and cutting:

Figure.33 Fabric Spreading

- Following the pre-production meeting, Production Planning and Control (PPC) delivers the sample file, order file, and final patterns.

- The spreading and cutting department receives the information about the purchase order and the delivery dates and gives it to them.

- Before spreading and cutting, the fabrics are given a fabric relaxation.

- The lay for the pilot run cutting (of 100–500 pieces) is initially produced according to the order amount.



- The PPC team examines remarks from the pilot run.

- When the pilot run is deemed successful, the specific style is moved on to the bulk cutting.

- The department responsible for quality assurance (QA) approves bulk cutting. If not, the necessary adjustments are made.

- The CAD department creates the cut plan and marking plan from the finalized designs, taking into account details like shrinkage, elongation, fabric color variation, modifications, etc., and provides it to the spreading and cutting department.

- Before starting the lay, the layman gets the information of the style no, length and width of the marker, fabric shade and number of lays.

- A brown sheet of relevant marker length is spread on the spreading table before the lay is started.

- Spreading is started and the ply of the layer is spread as per the marker's specification.
- Time is noted at the starting of the first ply and again noted after the last ply. By this, the calculation for the whole spreading process of that particular style is known.
- The height of plies should be maximum 3 inches,once the spreading is over, the panel cutting starts.
- All the panels are cut using a straight knife cutting machine (manual cutting process).
- Before beginning the lay, the layperson obtains information regarding the style number, width and length of the marker, cloth colour, and number of lays.
- On the spreading table, a brown sheet with the appropriate marker length is stretched out before the lay begins.a
- The layer's ply is spread in accordance with the marker's instructions as spreading is initiated.
- Time is recorded at the beginning of the first ply and once more at the conclusion of the last ply.
- After the spreading is finished, panel cutting begins, a straight knife cutting machine is used to manually cut all of the panels.
- Time is cut, it is noticed.The hue of the ticket is determined by the fabric's shade. Every ply in every panel receives.
- If additional cutting, fusing, or embroidery is needed, it happens after the initial cutting.
- The components are compared to the patterns to ensure that they match before being given the all-clear to be bundled.
- The bundles are sent to the sewing department.
- The supermarket receives the cut panels, which are then placed in the appropriate queue racks.
- At the time of receiving the components, all the information pertaining to the chopped components is logged.
- When the sewing line needs the cut bundles, the feeder goes to the grocery store and purchases the necessary amount for one day's worth of WIP (work in progress) before the next day and a half.

6.1. MAXIMUM QUALITY STANDARDS (LAY HEIGHT)

MAX. LAY HEIGHT-QUALITY STANDARDS	
100% cotton	3 ½ Inches
100% viscose	2 Inches
100% Polyester	2 ^{1/2} inches
Polyester cotton blends	3 Inches
Polyester viscose blends	3 Inches
Cotton spandex blends	3 Inches

Viscose spandex blends	3 Inches
------------------------	----------

Table. 6

6.2. Straight knife cutting machine:



Figure.34 Straight Cutting

Different sized components are cut using a straight knife cutting machine. The tool that is most usually used for cutting clothing in bulk is this one. When compared to the fabric spread, it moves along the cut outlines.

6.3. Band knife cutting machine:



Figure.35 Band Cutting Machine

- Cutting is done for the clothing, and production is done for that pattern's base.
- Cutting is the process of separating a garment into its component parts.
- In its most general form, cutting is the production step in which a spread is disassembled into garment parts that are completely the same size and shape as the pattern pieces on a marker.

6.4. Numbering and Bundling:



Figure.36 Number Tag

- Small components and body parts are put separately in a sequence in the bundle of cut components, which are also divided by size.
- The bundle containing the layer chart and the cut stack is knotted with the cut portions of the master marker.
- The first two digits on the sticker stand for the shade or lot code, the next two represent the size, and the final four represent the serial number.
- The sticker is assigned by the sticker machine to the layer of the cut component based on the color's shrinkage-wise.

6.5. Shrinkage percentage:

S.NO	Shrinkage percentage
1.	0 – 0.5%
2.	1%
3.	1.5%
4.	2%
5.	2.5%
6.	3%
7.	3.5%
8.	4%

Table. 7

6.6. Fusing machine and process:



Figure.37 Fabric Fusing

- The process of fusing is often carried out by continuous fusing machines, which heat the cloth from both sides.
- The entire surface is heated through the HEAD, and after a certain period of time, the HEAD travels upward.
- The HEAD and BUCK are separated after exerting pressure and heat for a certain period of time.
- An air-sucking fan in the buck is then turned on to cool the fused pieces.
- By using pressure, heat, and time, fusing material is used to fuse a fabric, giving the fabric consistency.
- The cloth that will be fused must be strong enough, able to withstand repeated washings, and suitable for all other purposes.

6.7. Process of fusing machine:

- Before beginning the fusing procedure, the PPC test report, fabric swatch, and fusing details must be reviewed.
- The mock is set up and cleaned according to protocol.
- Before and after washing, the fusing quality is verified.
- If the fusing properties satisfy the specifications, several additional pieces with the same fusing properties are used to complete the fusing.
- The strength of the fusing connection is tested both before and after steaming using the relevant machine parameters.
- The sample is examined, and the order information and tiny marker are received.

- According to the approved small marker, CAD creates the actual marker.
- Production in bulk has begun, while fusing, the machine's parameters, including temperature, pressure, and duration, are checked often (minimum twice each day).
- Production in bulk is still ongoing.
- If necessary, the CAD department issues re-cutting.
- The little fused bits are sorted/sticker after cutting and fusing.
- The cutting components are put back together on the cutting table, at AQL level 1.5, cutting audits are performed.

6.8. Fusing instructions:

- Only the machine's settings for temperature, pressure, and speed should be made according to the supplier's specifications.
- For proper operation, the machine's temperature and fuse line must be tested again using a temperature instrument.
- The order file specifies that only the designated fabric may be fused. Every hour, the machine's parameters such as temperature, pressure, and time should be examined.
- While fusing that specific cloth, the swatch of the running style should be placed on the machine
- Good working conditions must be maintained at the workplace.

7. PRODUCTION DEPARTMENT:

- Sewing is the most important operation on the process of garments making. Sewing means joining of different parts of garments.

8. • Record & details of sewing means joining of different parts of garments.

7.1. TYPES OF SEWING MACHINE:

- Single Needle Lock Stitch Machine
- Single Needle Lock Stitch Machine (with under bed Trimmer)
- Single Needle Lock Stitch Machine (with Edge cutter)
- Double Needle Lock Stitch Machines
- Single Needle Chain Stitch Machine
- Double Needle Chain Stitch Machine
- Over Lock Machine (3 Thread)

- Over Lock Machine (5 Thread)
- Flat Lock Machine (Cylinder Bed)
- Flat Lock Machine (Flat Bed)
- Bar Tack Sewing Machine
- Button Holing Machine
- Button attaching Machine
- Multi-Needle Chain Stitch Machine
- Single Needle Lock
- Stitch Machine (Top Needle Feed)
- Single Needle Lock Stitch Machine (With variable top feed mechanism)
- Feed off the Arm sewing machine

7.2. DEFECTS CODE LIST:

FABRIC DEFECTS:

- Fabric damage/holes DH.
- Shade variation/Checking problem CS
- Weaving defects.

7.3. SEWING DEFECTS:

- Puckering PP
- Broker / increases / skip / vertically joint BS
- Raw edges RE
- Run off RO
- Smocking problem
- Trim problem TM
- Way Stitching WS
- Specs SP
- Cutting CP

- Other OT

7.4. CUTTING DEFECTS:

- Miscut MC
- Cutting Unbalanced/Unmatched CM UM
- Add marking before attaching the panel.
- Mark the measurement on M/C bed.
- Charge marking pattern.
- Replace operator by trained operator.

RO:

- Replace operation foot with compensatory foot.
- Set guide on M/C for equal margin.
- Educate to operate in present of supervisor.
- Add light on machine because on dark color machine.
- Teach to operate ensure uniform seem allowance.
- Change the feed dog of machine.
- Check needle & change size.
- Add pressing before operation.
- Attach the panel with proper margin.
- Train to operator for add cut before O/C.
- Reset the machine tension & proper threading & machine.

RE:

- Add edge cutter M/C then attach the panel.
- Clean the loose thread before operation.
- Change blade of machine.
- Change folder & Reset M/C.

WS:

- Add stay stitch follow it's as guide.
- Change O/L guide for proper margin.
- Guide operation in the presence of supervisor.

- Improve operation handling in presence of supervisor.
- Add guide on machine.

BS:

- Change the needle of machine.
- Teach to operator for correct threading of machine.
- Reset machine tension.
- Replace SN machine with VBT machine.
- Change spring of M/C & rectify thread tension.

8. Washing department:



Figure. 38 Washing Machine.
Washing typically occurs following garment sewing.

Customers request garment washing for particular product categories based on the current fashion and their needs.

Clothing customers specify the specific types of washing they require for the order when it comes to the washing.

8.1. Washing instructions:

- After washing 50 pieces for each new style, to obtain the merchant's approval for hand feel and shade lot.
- If any new shades appear during bulk washing, the merchant must be consulted for consent on any shade alteration.
- After the merchant has approved the recipe, washing is completed. According to the buyer's requirements, the pH of the garments must be maintained.

- It Is necessary to take measures against loading the equipment excessively. The employees must be required to take safety precautions. Mesh bags must be used to store and line-dry fragile clothes. Updates must be made to maintenance cards.

8.2. SOP of washing department :

- Planning sheets are gathered from the planner and discussed with factory management.

Requirements and planned styles are checked to ensure that there is enough buffer.

- Ensure that production meets all running-style production requirements. Seamless operation.

- Ensure that all of the specified chemical styles and recipients are available and collected beforehand.

- Pre-production work must be done before fulfilling requirements. Available with enough lead time.

- Ensure that the management follows the objectives as stated, for example, that rewashing should account for more than 1% of the total.

- Materials must be cleaned after collection and checked for approval in 5 days.

8.3. Chemical handling:

- Depending on the hazard class, all incompatible substances are separated for safe storage.

- The chemicals that are similar to one another should be kept apart from the other set of chemicals that could combine to produce hazardous reactions.

- If the capacity is greater than 10 gallons, all flammable chemicals must be kept in a cabinet that has been authorized specifically for storing flammable materials.

- The storage space includes a recommended storage layout where the chemicals should be kept apart from non-compatible danger classes.

- Chemicals in liquid form need to be kept in container that can't be broken or is double-contained.
- If not, the container's capacity to hold its contents in case it breaks should be sufficient for the storage cabinet.
- Inflammable chemical is acetic acid.
- All of the chemicals left over, excluding it, are non-flammable.
- The chemicals listed above must be kept in a cool, dry environment.
- When handling the chemical, the gloves must always be worn.

8.4. Tumble dryer machine:

- When the machine is not in use, the clothes are put inside it.
- 70% of the tumble dryer's capacity is designated for clothing.
- When the dryer is full of clothes, lock the lid with the dryer cap before turning the power on.
- Cotton materials should be kept at a temperature between 50°C and 65°C.
- The dryer needs to run constantly for at least 30 minutes.
- The operator of the machine must operate it while wearing a gumboot.
- The tumbler needs to be cleaned periodically.
- Inform the senior right away if any machine electric wires are found to be loose.

9.Finishing department:



Figure.39 Finishing Equipment

The clothes are sent to finishing once the washing process has been completed in the washing department. Before packing, this is the final step in the production process.

QMS – Quality management system.

RQS – Requirement quality system.

9.1. 5S Explanation:

Sort:

When in doubt move it out- Red Tag technique.

Set in Order:

A piece for everything and everything in its place.

Shine:

Clean and inspect or inspect through cleaning.

Standardize:

Make up the rules, follow and enforce them.

Sustain:

Part of daily work and it becomes a habit.

9.2. Clock wise checking:



Figure.40 clock wise checking

- Holding the garment at the shoulder points will allow you to check the appearance first. Check the garment's front and back.
- On the audit table, lay the item flat. Verify the garment's specifics.
- Open and inspect the front center opening.
- Examine the collar's both inside and out. Check the shoulder's interior seams.
- Check the side of the neck and fold the garment forward at the shoulder.
- Verify the neck seam's tension. Extend yourself to the fullest.
- Check the seam on the left shoulder. Check the seam at the left armhole.
- Across the front of the garment, fold the left sleeve. Look at the left back armhole. Look for shade.
- Check the inside and outside of the left sleeve cuff. Verify the left cuff seam's tightness. Extend yourself to the fullest.
- Look under the left arm. Check the seam on the left side.
- Check the left underarm seam's tension. Check the left side seam's tension.
- Check the bottom from the front and the back, inside and out. Verify the bottom hem's tightness.
- The bottom should be completely extended. Look at the right side seam. Look under the right arm.
- Check the right side seam's tension. Check the right underarm seam's tightness. Check the inside and outside of the right sleeve cuff.

- Right sleeve cuff tension should be checked. Extend yourself to the fullest. Right sleeve should be folded across the front of the garment.
- Look at the right back armhole. Look for shade. Check the seam at the right armhole. Check the seam on the right shoulder.
- Flip the garment over. On the audit table, lay the clothing flat. Examine the unchecked seam on the back and style details. Turn the clothing inside out.

9.3. Process flow of finishing department:

- The previous department delivers the entire order file, the authorized sealed sample, and the pilot run components.
- The PPC meeting's finalized process requirements for the style, together with the technician's feedback, are obtained and learned.
- The initial output and pilot run items have been finished and reviewed.
- The previous department provides the bulk of the production.
- The production merchant delivers the planned delivery timeline and the Po's specifics.
- The reference sample, approved comments, and specifics of the production process are downloaded, trained for presentation, and finalized in the Pilot run review by the PPM.
- Size-based separation and inbound bulk production are completed.
- If necessary, marking on the pressing table, a cloth change, and the pressing instructions are carried out.
- Initial pushing has been completed 100% (optional). If not, the necessary alterations or cleaning are made.
- Calculations are made for DHU (alteration, spotting, and rejection). All buttons have been closed.
- The specification is followed during the final pressing.
- All final checks have been completed. If not, the necessary alterations or cleaning are made.
- Calculations are made for DHU (alteration, spotting, and rejection).
- Measurement specifications, required measurement points and the tolerances as per the style are given to the measurement checkers.
- Training is given to the measurement checkers.
- 100% measurement checking is done. If it is not OK, the pieces are repaired/rejected.
- Final audit is done as per the AQL level 1.5. Re-checking is done if not OK.
- According to the style and the PO, the tags are issued to the tag man.

- Tagging and the hanger attachment of particular size are done as per the displayed PO approved trim card.

- The finished garments are dispatched to the packing department every hour. The hourly/daily production is noted, displayed and monitored.

9.4. Pressing instructions:

- The approved sample is to be followed when pressing the clothing.
- Pressing guidelines should be followed in line with the specified style.
- Inform the supervisor if an oil mark or other An error gets noticed while pressing.
- The entire garment should be covered during pressing.
- Repress the clothing as necessary.
- Whenever given instructions, adhere to the marking on the pressing table.
- If necessary, press while using the buck.
- Before pressing, make sure there is steam pressure.
- Verify that the watermark was not removed from the clothing by pressing.

9.5. Finishing defects:

- Puckering/pleating/ropeing.
- Broken/insecure/skip.
- Raw edges.
- Unbalanced/unmatched.
- Run off.
- Trim defects.
- Way stitching.
- Poor hand feel.
- Oil/handling soil stain.
- Uncut threads
- Poor pressing and
- Mending.

9.6. Needle Detection Calibration Process:



Figure.41 Needle Detective Machine

- At nine predetermined points (A1–A9) on the belt, a ferrous card with 0.5mm calibration is positioned.
- And logged for both the positive and negative outcomes.
- If a metal is identified and the calibration card's output is negative in the belt will move.
- These are maintained for eight hours.

9.7. Procedure of metal detection machine:

- 100% of the clothing is put through the metal detector.
- The final clothing items are arranged one by one and prepared for shipment at Examine the movement of the garment by placing its front side on the top of the moving conveyor belt.
- It can be determined that a metal needle got stuck if the machine stutters as soon as the garment passes.
- Or there is a danger that the device will break down.
- The fragments are visually scrutinized if the metal needle successfully identifies them.
- After manual inspection, if the needle metal is not apparent, the item is noted in the report and placed into the locked quarantine box for destruction.
- The clothing that have passed detection are kept apart in the packaging area's metal-free zone.

10.Package department:

The component finishing phase of the ready-made clothing line is the packing area. The materials are typically packed in accordance with ratio or selection in the packing area. The apparel inspector in the latter checks the apparel item in accordance with the packing list for industrial room.

10.1. Moisture index:

Moisture fibre	Maximum moisture index
Cotton	67
Wool	24
Linen	77
Silk	45
Polyamide/Nylon	67
Acetate	60
Acrylic	40
Polyester	39
Corton box	65

Table 8

10.2. Procedure of packing department:

- Styles and PO information are acquired for metal dictation from the finishing department's checked/inspected components and the production merchant/ppc.
- All clothing is put through a metal dictation machine in accordance with the requirements of the buyer.
- Every two hours, the metal dictation machine is calibrated.
- For all clothing, a two-hour cooling period is observed.
- If there is a problem during this time, all the clothing in the cooling box is put through a metal detector to make sure there is no metal contamination.
- If a certain style or clothing has metal attachment trimmings, the garment must first pass through a metal dictation machine before the trim may be utilized to attach the garment.
- Before beginning work, 100% of the garments are audited for tag size, primary label, and other labels in the loose garment audit, Pieces are then sent back to be corrected. If the audit is unsuccessful, all of the parts are sent back to the finishing department to be checked again after being
- received in the lot.
- If passed, the packing section receives the clothing.
If necessary, one lot should be packaged in one carbon box to ensure that the packed pieces are separated according to permitted lots.
After being accepted by the merchant/DQA, the packing trim card is presented in the packing section.
- One sample is on exhibit, complete with all packing requirements with merchant DQA approved trimmings.

11.Industrial engineering (IE):

SMV = Standard minute value

SAM = standard Allowed Minute

11.1.IE Key points

1) $SAM = \text{Basic Minute} (1 + MD\%) (1 + PF\%) + B. H. T = \text{Basic Minute} (1 + PF\% + MD\% + MD\% * PF\%) + B. H. T.$

2) Basic minute - Average single cycle time $\times$ Rating%

3) Bundle handling time = small Parts = 0.024

4) Efficiency = $\frac{\text{output}}{\text{input}} \times 100$

5) Efficiency = $\frac{\text{output} \times SAM}{\text{working minutes} \times \text{no. of operations helper}} \times 100$

6) Target output = $\frac{\text{Target efficiency} \times W.M \times Strengt}{SAM} \times 100$

7) SAM Produced = No. of Pieces Produced $\times$ Sam

8) working Minutes = ON. Standard Time + off Standard Time.

9) on standard time working Minutes - off Stand Time.

10) off Standard Time = working - on standard A Time.

11) Target = $\frac{\text{clock time}}{SAM}$

12) Performance = $\frac{SAM \text{ Produced}}{\text{on standard time}} \times 100$

13) utilization = $\frac{\text{On standard time}}{\text{clock time}} \times 100$

14) Operator requirement = $\frac{\text{Target} \times SAM}{\text{Clock time}}$

15) Pieces Per Machine = output / No of Machines

16) WIP = Large operation in parts + Assembly $\times$ PP.M/L.

17) WIP = No of operations in critical part 1 HR WIP.

18) No. of workers = SAM $\times$ Target / Line efficiency $\times$ 480

19) Batch Target = workers $\times$ Line Efficiency 280 / SAM.

20) Estimated actual Time - SAM / Target efficiency $\times$ 100

21) Capacity = $\frac{\text{Basic minute}}{\text{Average SCT}} \times 100$

22) Operations per garment = SAM / Garment $\times$ Estimated target O/P/Clock.
Time $\times$ estimated efficiency.

23) Basic pitch time = $\frac{\text{operator SAM}}{\text{No. of operators}}$

$$24) UCL = \frac{\text{Basic pitch time}}{\text{Planned efficiency}}$$

$$25) LCL = (2 \times BPT) - UCL$$

26) STD SMV'S= Button hole 0.12 mins

Button Attachment 0.10 mins

Key hole attachment 0.20 mins

Bar tack attachment 0.08 mins

11.2. Machine delay percentage:

Single needle lock machine	12.5
Double needle lock machine	17.5
Single needle edge machine	12
3 thread overlock	7.5
5 thread overlock	9.5
Feed of ARM	9.5
3 Thread chain stitch	10.5
4 Thread chain stitch	12.5
Button hole chain stitch	3.5
Button hole lock stitch	5
Bar tack	5
Pressing	2.5

Flat lock	18.5
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Table. 9

11.3. Thread consumption:

SI.NO	STITCH CLASS	TYPE	RADIO	LOOPER THREAD%	BOBBIN THREAD%
1.	301	Lock stitch	2.5	50	50
2.	101	Single thread chain stitch	4	100	0
3.	401	Two thread chain stitch	5.5	25	75
4.	301	DNLS	5	50	50
5.	504	3 Thread over lock	14	20	80
6.	514	4 Thread over lock	16		
7.	516	5 Thread over lock	20	20	80
8.	601	3 Thread flat lock	18	3T(2N+1L)	0
9.	602	4 Thread flat locks	25	4T(2N+1L+1C)	0
10.	605	5 Thread flat lock	28	5T(3N+1L+1C)	0
11.	607	6 Thread flat lock	32	6T(4N+1L+1C)	0
12.	401	Feed of ARM	11	25	75

Table 10

11.4. Senior executive (Industrial engineering) ;

- To achieve and sustain the monthly sewing efficiency of 75% in the factory.
- To reduce and arrange work in process (wip) in sewing line in the factory to less than 2 days wip in wore than 90% lines.
- To support the production floor with line layout and line balancing.
- To maintain the skill matrix op operators.
- To work on continuous important new technology, new methods, reliable resources to achieve operational excellent.

- To keep on updating skill matrix by means of time study, capacity of operations which helps the production to improve the production efficiency by proper line balancing and control.
- checking all the stitches and operations involved in a garment carefully during R & D for smooth production.
- To have production good command over language so that the operations can be well defined and easily understood by all concerned.
- Monitoring all the necessary documents related to sample during R & D to keep close eye on customer requirement.
- To keep on working different process involved in the garment manufacturing Process
by means of time study & process simplification to boost the production efficiency and right at first time to meet on time delivery.

11.5. Time study:

- Stop watch is to be used for carrying out time study
Time is to be measured for complete cycle - from pick - to - place
- * Time study should be done in one flow without any break for whole line.
- * Time study sheet is to be used.
- *Continues 5- readings of operations to be taken to calculate cycle time.

11.6. Sewing operations:

- The operator shall follow assembly sequence given to him.
- The operator should clean their machine every machine before the commencement of sewing to avoid stains.
- Use appropriate fixtures and arrange of fitting on the machine.
- See the machine of the required stitches per inch in accordance with that specification.
- Operator should check the needle tension, bobbin thread and thread tension through different procedure before sewing to avoid any defects during sewing. Prepare the mock card for the same.
- Carry out sewing operator on the component in accordance with sewing and seaming specifications.
- Exercise care to sew within the sewing allowance so as to avoid opening of the seam and maintain the dimensional accuracy.
- Bobbin and bobbin case holders are kept in the specified pouch and returned to supervisor at the end of the day.

11.7. Types of Marker:

- CSV - selvage shade variation
- LSV - length shade variation
- Checked
- Solid.

11.8. Cutting manager:

- To achieve and sustain the monthly cutting efficiency of 80% in the factory.
- To reduce the actual fabric consumption against the budgeted fabric development stage to 20%.
- To reduce and sustain cutting defects per hundred units (DHU) to less than - 1%.

11.9. New garment OCR slab:

Order qty	Garment OCR
<5K	3%
5k to 10k	2.50%
10k to 20k	2%
20k to 20k	1.50%
30k to 50k	1.50%
>50k	1%

OCR - Order closing required

Table. 11

11.10. Grading:

The buyer just specifies the items they desire and gives additional instructions. Only markers were provided from the head office.

12. Training schedule:

•Operator training is given to the unskilled workforce in the organization as and when the need for skilled manpower for sewing operation arises. However generally it is given once in 2 months to a group of 5 unskilled workers.

•The training program is conducted 8 hours a day over a span of 15 days, each day has its own present agenda to be followed by the training supervisor. The schedule generally followed is given below.

12.1. SCHEDULE FOR 15 DAYS TRAINING PROGRAM:

DAYS	AGENDA
Day 1	A brief on the training program is given to the operators.
Day 2	Basics of the sewing machine is explained to the operators.
Day 3	Test 1: Mind games & Machine controlling.
Day 4	Burst exercise and round exercise.
Day 5	Rectangle exercise
Day 6	Types of stitches, fabric handling and machine control exercise.
Day 7	Types seams, fabric handling and machine control exercise.
Day 8	Test 2: Mind games & cuff making.
Day 9	Stitching of essential parts of the company.
Day 10 & 11	Test 3
Day 11	Sleeve and placket exercise.
Day 12	Pocket, Pocket Flap, front placket stitch are trained
Day 13	Binder, and folder operation are trained.
Day 14	Test 4 is started.

Table 12

13. Quality department:

- The assistant for planning examines the tech-pack, reference sample, and allocation.
- The tech-pack of the sample is reviewed by the sample manager to identify any deviations and discuss them with the merchant.
- Samples should be taken as directed by the sampling head.
- The fabric quality checker should follow up on the fabric inspection, gathering the supplier's reports, reviewing them, and taking the appropriate steps.
- A quality inspector from the store checks the trim card to ensure it matches the bill of materials.
- The sample manager runs the meeting and provides instructions for creating samples for the size set, Internal PP, SMS Sample, GS Sample, and other purposes.
- The sample manager runs the required samples, including the size set, external and internal PP, SMS sample, counter sample, and additional samples as needed.
- The internal programme specific report and the garment check report should be followed up on by the fabric QC.
- 100% shade variation, CSV, shrinkage, and width segregation are carried out in accordance with the specifications by the fabric QC.

- Based on a 4-point inspection system, 10% fabric examination and shade variance is performed.
 - An additional 10% inspection is conducted if the first one is unsuccessful.
 - Even if this examination fails, the correspondent merchant is informed. The fabric is color coded and placed on fabric racks with identification if the inspection is successful.
 - Color fastness of all labels is tested by affixing them to the body or a white fabric. Visibility of marks is tested using certified markers on the body after the fabric has been washed, and nickel tests are performed in the central lab on metal trims.
 - An AQL 1.5 level audit of trims is conducted.
 - Level 2 checking is done if this audit is unsuccessful. In the event that it fails, the saved trims are placed in the rejected region along with identification for subsequent steps.
- Trims are saved with identification in the designated place if the audit is successful.
- The shop assistant trims the merchandise.
 - The internal PP, SMS sample, counter sample, and size set sample are all examined for technical features by the sampling quality checker.
 - If the technical components of the sample are unsuccessful, the patterns will be changed by doing the required actions and making new size sets.
 - It is made available to the customer if the size set review is successful. The buyer reference sample is sent to the corporate office if the customer agrees the size set.
 - The reference sample is given to the designated QA, who will then release modified patterns for the pilot run.
 - The quality assurance manager monitors fabric relaxation in accordance with specifications, fabric face-side combo card approval, shade and shrinkage grouping from the Pattern section, and FPT data from the retailer.
 - Conducting internal and external PPM, metal detection for metal trims, and pre-production pull tests for buttons and snaps.
 - On evaluating in the cutting area, necessary actions such the fabric combination card, shade shrinkage report, mini marker, defect standard, and numbering placement are carried out.
 - If the fit fails, the required steps are conducted in collaboration with the relevant department.
 - If it passes, the order quantity for all sizes of the pilot run components is cut. The trial run is carried out by executives and managers in sewing quality.
 - National Quality Assurance (NQA), which oversees quality assurance, reviews the pilot run. Pilot run is redone if the review is unsuccessful.
 - If it succeeds, the customer is provided with a pilot run.

- If the buyer approves the quality run, the cutting section will receive approval to move on to the bulk cutting.
- The lay marker is inspected by the cutting quality checker (QC).
- Corrections are made if the lay marker deviates in any way.
- Cutting Quality Control inspects the cut pieces for size and shape in accordance with the approved pattern. Corrections are applied if the patterns deviate in any way.
- These cut parts are gathered by the workers for packaging and numbering.
- The checker performs panel inspection for the large panels in the style.
- The quality checker conducts an audit to determine whether there are any needs for embroidery and printing.

At AQL, Cutting QC conducts an inspection. The cut panels/bundles are given to the sewing division if the inspection is successful.

- The continuation of the required steps based on the review in the sewing section for the delivery of cut parts for shade.
- shrinkage, permission card for the fabric and trims, marking templates, PP sample with comments, and completion of the size set pilot run comments.
- If it doesn't work, the necessary steps are done in collaboration with the relevant department.
- If it is successful, mass production is carried out.
- According to buyers, garment inside inspection and inline quality audit based on AQL 1.5 or 2.5 are performed.
- Garment topside ironing, topside checking, and trim visual inspection are all done.
- Two pieces each hour for measurements and 100% verification of all important measurements.
- According to the buyer's specifications, an end-line quality audit is conducted at AQL 1.5.
- The metal detection process is carried out by a metal detection machine operator, who observes shade segregation.

14. PPC department - production planning control:

- Production and Control (PPC) is in charge of ensuring smooth operations and that equipment and supplies are available when needed in the clothing manufacturing industry.
- In order to ensure that the item is delivered on time, they also work closely with all pertinent departments.
- Delivery of OCR (Order) Order Completion Reports (OCRs) are closed as soon as the order has been shipped.

CONCLUSION

Overall, this internship has been a valuable and enriching experience. Throughout this program, I have acquired new knowledge, developed essential skills, and had the opportunity to connect with many new people. Achieving my learning goals has been gratifying, and I have gained valuable insights into the professional practices prevalent in the industry. Working within an established industry has provided me with a deeper understanding of various aspects related to our studies, particularly in the manufacture, assembly, and testing of three-phase distribution transformers. It has emphasized the importance of education being objective and relevant to real-world industrial practices. The internship has been a two-way process of sharing knowledge, ideas, and opinions, which has further broadened my perspectives. Additionally, it has allowed me to identify my strengths and weaknesses, enabling me to focus on improving the necessary skills and knowledge for my future pursuits. I am confident that the knowledge gained during this internship equips me to contribute effectively in my future endeavors. I extend my heartfelt thanks to all the staff and mentors at the unit for their unwavering guidance and support throughout my internship journey.



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