



**Faculty of Engineering
Department Of Textile Engineering
REPORT ON
Industrial Attachment**

**At
TANZILA TEXTILE LTD
Ashulia, Savar, Dhaka
Course Title: Industrial Attachment
Course Code: TE-410**

Submitted By

**Jahed Hossain Jamy ID-142-23-3934
Md. Masrukh Ahmed ID: 142-23-3921**

Academic Supervisor

**Md. Abdullah Al Mamun
Assistant Professor**

Department of Textile Engineering

This Report presented in partial fulfillment of the Requirement for the Degree of Bachelor of Science in Textile Engineering.

Advance in Apparel Manufacturing Technology

Duration: From January 07, 2018 to March 06, 2018



Acknowledgement

First of all we are grateful to Allah who gives us sound mind & sound health to accomplish **Industrial Attachment at Tanzila Textile Ltd** successfully. We are also grateful to our supervisor -**Md. Abdullah Al Mamun**, Senior Lecturer, Department of Textile Engineering, Faculty of Engineering, Daffodil international University. Her endless patience, scholarly guidance, continual encouragement, energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting these at all stages have made it possible to complete this project.

We would like to give special thanks to the supervisors, technicians, operators and all other staffs of **Tanzila Textile Ltd**, who were most cordial and helpful to us during internship.

We are also thankful to our all teachers, lab assistant, register sir, coordinators and all the employees of Daffodil International University. We are highly delighted to express our regards & gratitude to honorable Head **Prof. Dr. Md. MahbulHaque** for providing his best support to us. Finally, we would like to express a sense of gratitude to our beloved parents and friends for their mental support, strength and assistance throughout completing industrial attachment.

Declaration

We hereby declare that the work which is being presented in this report entitled, “Industrial Attachment at Tanzila Textile Ltd ” Is original work of our own, has not been presented for a degree of any other university and all the resources of collected information for this report have been duly acknowledged.

Name	Id	Signature
Jahed Hossain Jamy	134-23-3934	



Md. Masrukh Ahmed	142-23-3921	
-------------------	-------------	--

Department of Textile Engineering

Faculty of Engineering

Daffodil International University

Letter of Approval

April

To

The Head

Department of Textile Engineering

102, Shukrabad, Mirpur Road, Dhaka 1207

Subject: Approval of Industrial Attachment Report of B.Sc in TE Program.

Dear Sir,

I am just writing to let you know that this Industrial Attachment in “Tanzila Textile LTd” has been prepared by the student bearing ID 142-23-39 and 142-23-3921 is completed for final evaluation. The whole report is prepared based on the proper investigation and information in Tanzila Textile Ltd. The student were directly involved in their industrial attachment report activities.

Therefore it will highly be appreciated if you kindly accept this industrial attachment report and consider it for final evaluation.

Yours Sincerely

Md.Masrukh Ahmed



Table of Contents

Executive Summary	1
1. Executive Summary	2
Chapter-2.....	Error! Bookmark not defined.
Information about Factory	3
2.1 Basic Information.....	4
2.1.1 Company Name &Address.....	4
2.1.2 Head Office Address	4
2.1.3 Date of Establishment.....	4
2.1.4 Founder and Directors	4
2.1.5 History of the Group.....	4
2.1.6 Compliance Certifications	4
2.1.7 Sister Concerns	4
2.2 General Information	5
2.2.1 Layout.....	5
2.2.2 Total Area.....	5
2.2.3Total Building.....	5
2.2.4 Total shade.....	5
2.2.5 Production capacity	5
2.2.6 Major Buyers with Their Logos	5
2.2.7 Transport Facility	7
2.3 Human resource & organization structure:	7
2.3.1 Organogram	8
2.3.2 Total no. of Departments	8
2.3.3 Name of Department	9
2.3.4 Main production	9
2.3.5 Total no. of employee.....	9



2.3.6 Total salary	10
2.3.7 Vision and Mission	10
Chapter-3.....	Error! Bookmark not defined.
Details of Attachment	11
3.1 KNITTING SECTION	11
3.1 Knitting Section.....	11
3.1.1 Knitting Section Layout	12
3.1.2 Organogram	13
3.1.3 Machine List.....	13
3.1.4 Machine Description.....	14
3.1.5 Working Process in Knitting Section	15
3.1.6 Basic Knitting Element.....	15
3.1.7 Yarn Passage Diagram.....	16
3.1.8 Fabric Inspection Process	16
3.1.9 Different Defect in Fabric.....	16
3.1.10 Knit card	18
3.1.11 Types of yarn used.....	18
3.1.12 Precaution	18
3.2 DYEING SECTION.....	19
3.2.1 Layout.....	20
3.2.2 Organogram	21
3.2.3 Lab	21
3.2.4 Physical test Equipment.....	22
3.2.5 Color test Equipment	23
3.2.6 Process dyeing and finishing	24
3.2.7 Batch section.....	24
3.2.8 Work done in Batch Section.....	24
Formula for Batching.....	24
3.2.9 Fabric Turning Machine	24
3.2.10 Dyeing machine Specification.....	25



3.2.11 Dyeing Machine	26
3.2.12 Dyeing Process	27
3.2.13 Chemical used in different process and their function	27
3.2.14 Recipe of bright white shade fabric	28
3.2.15 Finishing	29
3.2.16 Slitting Machine	29
3.2.17 Stenter Machine	29
3.2.18 Compactor Machine	31
3.2.19 Sueding Machine	32
3.2.20 Brushing Machine.....	33
3.2.21 Rolling machine.....	33
3.2.22 Quality Control	34
3.3 GARMENTS SECTION	36
3.3.1 Layout of garments section.....	37
3.3.2. Organogram.....	37
3.3.3 Machine Description.....	38
3.3.4 CAD and Sample Section	40
3.3.5 Store Section.....	41
3.3.6 Fabric Relaxation procedure.....	43
3.3.7 Lab Section	43
3.3.8 Shrinkage Checking Procedure	44
3.3.9Light Box Checking Instruction	44
3.3.10 Spreading	44
3.3.11 Cutting Section	46
3.3.12 Process of Cutting.....	46
3.3.13 Machine in cutting section.....	46
3.3.14 Parts of Cutting Machine with Their Functions	48
3.3.15 Points Should Concern Fabric Cutting	49
3.3.16 Lay Height	49
3.3.17 Cutting Table Specification	49



3.3.18 Wastage during Cutting	49
3.3.19 Sewing Section	49
3.3.20 Process	50
3.3.21 Different type's machineries with functions in sewing Section	51
3.3.22 Sewing Machine needle information	54
3.3.23 Machine layout (T-shirt).....	55
3.3.24 Machine layout (legging pant).....	55
3.3.25 Line target/hour	55
3.3.26 Quality control in sewing section	56
3.3.27 Finishing section.....	56
3.3.28 Finishing Work in Process.....	57
3.3.29 Process and Their Function	57
3.3.30 Final Inspection	60
3.3.31 Merchandising Department	63
3.3.32 Calculation of Knit Fabric Consumption (T-shirt).....	63
3.3.33 Points for consumption.....	63
3.3.34 Costing of a Basic T-shirt.....	63
3.3.35 Thread Requirement Chart	64
3.3.36 Production Planning and Control (PPC) Department.....	65
3.3.37 Maintenance Section.....	66
3.4 PRINTING SECTION	67
3.4.1 Layout.....	67
3.4.2 Organogram	69
3.4.3 Printing Type	69
3.4.4 Printing process	70
3.4.5 Screen making process	70
3.4.5 Machine	70
3.4.6 Repeat size in rotary Screen machine.....	Error! Bookmark not defined.
3.4.7 Mesh size (in linear inch)	Error! Bookmark not defined.
3.4.8 Chemical used in printing.....	71



3.4.9 Finishing	71
3.5 ETP	72
3.5.1 Process of Bio-chemical ETP	73
3.5.2 Function of ETP processes	73
3.5.3 Tested treated effluent parameter	74
3.5.4 Chemical Used in ETP	75
3.5.5 Equipment for testing	75
3.5.6 Capacity of treat water.....	75
Chapter 4.....	Error! Bookmark not defined.
4. Impact of Internship	76
4.1 Knitting Section.....	77
4.2 Dyeing Section	77
4.3 Garments Section	77
4.4 Printing Section	77
4.5 ETP	78
Chapter-5.....	Error! Bookmark not defined.
Conclusion	78
5. Conclusion.....	Error! Bookmark not defined.



Executive Summary



1.1 Executive Summary

This report presents a conception of Textile sector especially of a knit composite industry and tries to clarify the overall processes required to complete a garment. Two months long training is not enough to capture all the information related to but it is possible to overview of all the departments. Tanzila Textile Ltd. In where we try to gather information about all the departments. The factory has a nice system for the internship students that are the training schedule provided by the authority. There are several departments in Tanzila Textile Ltd among them knitting, Dyeing, printing and garments are the major ones. There are also other departments those act as supporting of them. It describes about the activities of each departments and the relation among the departments. Training schedule is prepared in such a way that helps a learner to know that to produce a garment which department works first and correspondingly which works at last. This paper includes from where order is received and to where it is supplied and how a large scale of products is produced within a very short period of time. Different types of order are running on the same time on a same floor with different types of garments from several buyers. But there is no miss match of any product except some cases which are removed by inspection. This paper concludes by identifying some important information about different department that help the factory to grow up quickly with large amount of profit with environment friendly technologies. This report may be a guideline for other small industries to become large in size and for students or other people to learn a little about a knit composite industry without visiting. We have started our 2 months internship in 7th January 2018 and have successfully completed in 6th March 2018.

Information about Factory



Figure: 2.1 Tanzila Textile Ltd



2.1 Basic Information

2.1.1 Company Name & Address

TANZILA TEXTILE LTD

Ashulia, Savar, Dhaka. Bangladesh-1345

2.1.2 Head Office Address

Road # 32,

House # 492 (2nd Floor)

New D.O.H.S. Mohakhali, Dhaka. Bangladesh.

2.1.3 Date of Establishment:

2008

2.1.4 Founder and Directors:

Chairman : Tahmina Zaman

2.1.5 History of the Group

Tanzila Textile has been established since 2008 and has rapidly become a major supplier of ready-made garments from Bangladesh.

When it comes to ready-wear manufacturing, TANZILA TEXTILE LTD. Is a cut above the rest. TANZILA TEXTILE LTD. Is a 'tells a tale of' a company that has everything right about it-its people, its technology, its systems, its customers and its location.

At TANZILA TEXTILE LTD. we endeavor to provide our customers with an exceptional service of the highest standard and quality to guarantee client satisfaction.

Today, TANZILA's success is a result of state of the art equipment and experienced personnel from the management team to the factory force. With a team of such quality TANZILA TEXTILE LTD Is able to run a highly efficient and competitive production unit, enabling us to meet the industries continuous increasing standards and demands.

As TANZILA's reputation grows, so does interest from other countries.

2.1.6 Compliance Certifications

Tanzila Textile Ltd realizes the importance of adapting to changes in external environment and keeping the workplace safe and enjoyable for employees to be motivated and productive.

Compliance certifications include

- SEDEX CERTIFIED
- BSCI
- OEKO-TEX

2.1.7 Sister Concerns

Divine Group



2.2 General Information

2.2.1 Layout

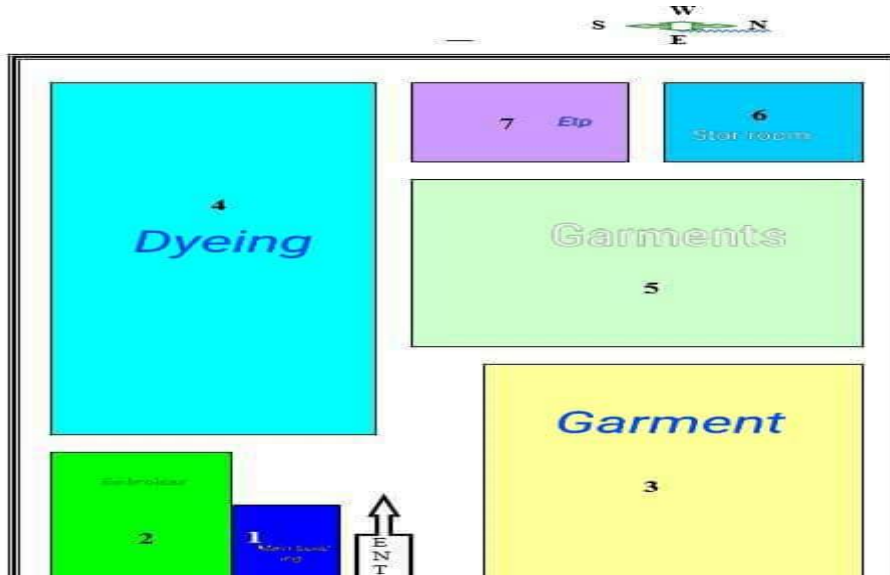


Figure: 2.3 Factory layout

2.2.2 Total Area: 50,000 sq. feet

2.2.3 Total Building: 5

2.2.4 Total shade: 4



2.2.5 Production capacity

Units	Space	Capacity
Knitting	15000 S.Feet	8 tons/day
Dyeing	50,000 S.Feet	12 tons/day
Cutting	10,000 S.Feet	35,000 pcs/day
Sewing	75,000 S.Feet	30,000 pcs/day
Finishing	10,000 S.Feet	35,000 pcs/day



Embroidery	4000 S.Feet	5000 pcs/day
Screen Printing	7000 S.Feet	28,000 pcs/day
Offset Printing	2000 S.Feet	30,000 unit/day
Sewing Thread (Reconning)	1000 S.Feet	3000 pcs/day
Sample	2500 S.Feet	100 pcs/day
Ware House (Garments)	12,000 S.Feet	1,00,000 pcs
Ware House (Yarn)	12,500 S.Feet	200 tons
Ware House (Grey Fabrics)	12,500 S.Feet	200 tons
Ware House (Finish Fabrics)	12,500 S.Feet	100 tons
Ware House (Dyes-Chemical)	8,000 S.Feet	500 tons
Utility	4500 S.Feet	

2.2.6 Major Buyers with Their Logos

Buyer Name	Logo
NKD	
Cotton On	
ICA	



KIK	 The logo for KIK consists of the letters 'KIK' in a bold, red, sans-serif font, centered within a white rectangular box with a thin black border.
LI &Fung	 The logo for LI & Fung Limited features the stylized letters 'L&F' in white, set against a red rectangular background. Below this, the text 'LI & FUNG LIMITED' is written in a smaller, black, sans-serif font.

Table: 2.1 Buyer of Tanzila Textile Ltd

2.2.7 Transport Facility

Office Staff: Bus, Car

Product: Cargo van

2.3 Human Resource & Organization Structure



2.3.1 Organogram

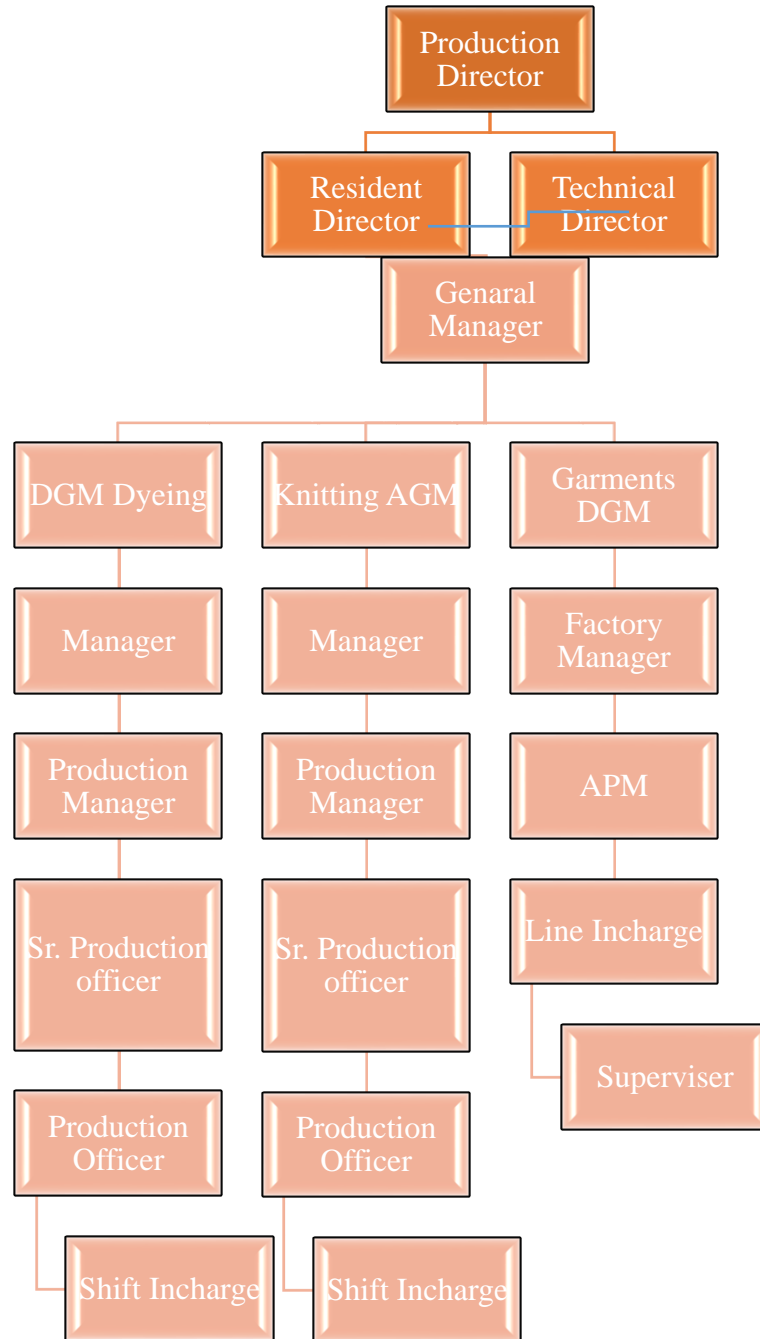


Figure: 2.4 Factory organogram

2.3.2 Total no. of Departments

09



2.3.3 Name of Department

- I. Knitting section**
 - Knitting
 - Inspection
- II. Printing Section**
 - Screen Printing
 - Offset Printing
- III. Dyeing Section**
 - Dyeing
 - Finishing
 - Quality
- IV. Garments section**
 - Sample
 - Cutting Section
 - Sewing Section
 - Finishing Section
 - Merchandising
- V. Utility section**
 - Electricity
 - Gas
 - Boiler
- VI. Store Section**
- VII. Administration Section**
- VIII. Security Section**
- IX. Ware house**
 - Yarn
 - Gray Fabric
 - Finish Fabric
 - Dyes Fabric

2.3.4 Main production

Knitting, dyeing & printing

Spandex, Fleece, S/J, Interlock, Rib, Lacoste, Pk etc.

Garments

All types of knit items for, such as T-shirt, pant, Ladies, Mens, Kids, Babies and Children.

2.3.5 Total no. of employee

Almost 1500



2.3.6 Total salary:\$50millions

2.3.7 Vision and Mission

Vision

To become a truly global supplier that provides a sustainable growth opportunities for its customer, county and its employees, whilst achieving its goal of becoming the number one value fashion supplier across the world.

Mission

- Be a market leader in the field of value global supplier of RMG.
- Deliver quality fashionable products at affordable prices.
- Be innovative, cost effective and globally competitive.

Details of Attachment

3.1 KNITTING SECTION

3.1 Knitting Section



Fig: 3.1. Knitting Section



3.1.2 Organogram

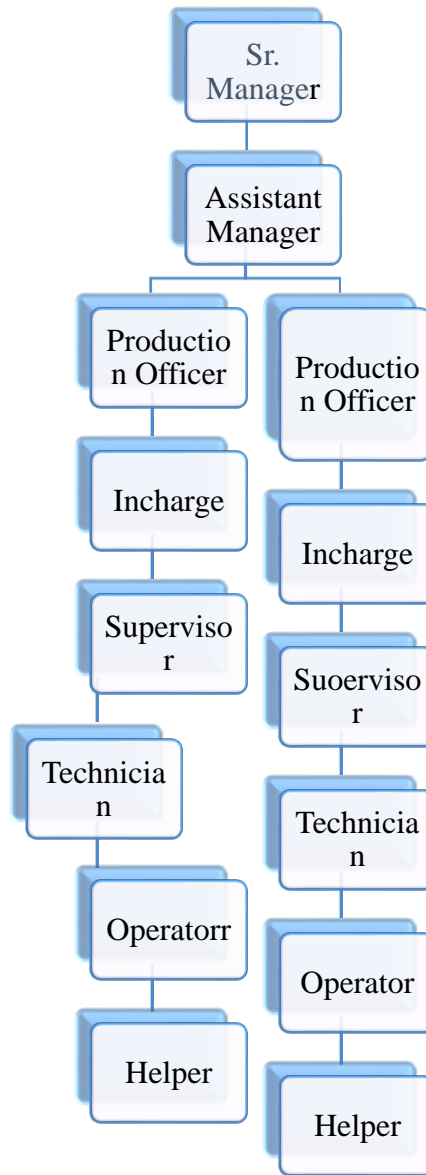


Figure: 3.3 Organogram of knitting

3.1.3 Machine List

Machine Name	UNIT	No. of Machine	Capacity	Actual Production



Circular knitting machine		12	12000kg/12hour		11000kg/12hour
Flat knitting machine		3	Collar	500pcs/12hour.per m/c	540pcs/12hour.per m/c
			Cuff	1100pcs/12hour.per m/c	1060pcs/12hour.per m/c
Fabric inspection machine		1			

Table: 3.1 Machine List

3.1.4 Machine Description Circular Knitting Machine

M/C TYPE	Brand	Dia	Gauge	Feeder	QTY
S/J	Pia lung	40	24	120	1
S/J	Pia lung	38	24	114	1
S/J	BCTEX	38	24	120	1
S/J	Pia lung	36	24	108	1
S/J	BCTEX	36	24	114	2
Rib/Interlock	Pia lung	36	18,24	72	1
Rib/Interlock	BCTEX	34	18,24	72	1
Rib/Interlock	Pia lung	32	18,24	64	1
S/J	Pai Lung	32	20,24	96	1
S/J	BCTEX	32	24,28	102	2
S/J	Pai lung	34	24	102	1
S/J	BCTEX	34	20,24,28	108	2
S/J	Pai lung	34	20,24	90	1
S/J	BCTEX	30	20,28	96	2
S/J	Pai lung	30	24	84	1
S/J	Pai lung	28	24	78	1
Fabric Check	Foshan best leader	26			1



Table: 3.2 Description of Knitting Machine

Fabric Inspection Machine

Manufacturer	AATPR Industry Company Ltd.
Origin	Thailand

Table: 3.3 Description of fabric inspection Machine

3.1.5 Working Process in Knitting Section

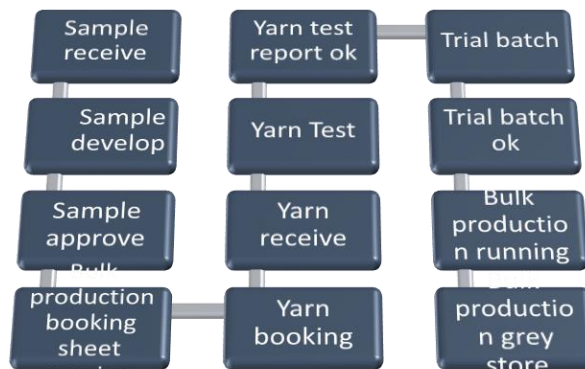


Figure: 3.4 Working Process in Knitting Section

3.1.6 Basic Knitting Element

- Needle.
It is a principal element of the knitting machine. It helps the yarn to create a loop. And by this way fabric are produce.
- Sinker.
It helps to loop forming, knocking over and holding down the loop.



➤ **Cam.**

Cam is a device which converts the rotary machine drive into a suitable reciprocating action for the needles.

3.1.7 Yarn Passage Diagram

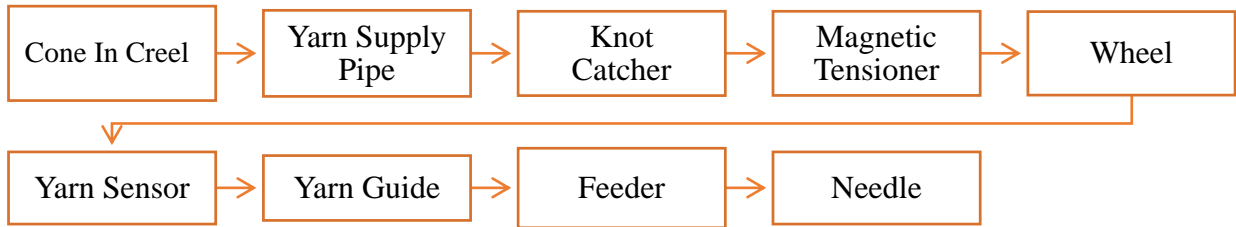


Figure: 3.5 Yarn Passage Diagram

3.1.8 Fabric Inspection Process

Four point system

Defect size	Points
3 inch or less	1
3 to 6 inch	2
6 to 9 inch	3
Over 9 inch	4
All hole	4

Table: 3.5 four point system

28 points per 100 square yards is acceptable

$$\text{Points count} \times 36 \times 100$$

Formula= -----

$$\text{Roll length 9 (yds.)} \times \text{Fabric dia (inch)}$$

3.1.9 Different Defect in Fabric

Fault Name	Causes



Hole		<ul style="list-style-type: none"> ➤ Yarn feeder badly set. ➤ Yarn breakage.
Set-off		<ul style="list-style-type: none"> ➤ Yarn breaks before the yarn feeder. ➤ Yarn package. winding faults,
Oil spot		When oil licks through the needle to the fabrics
Sinker mark		Sinker head bend
Needle line		Caused by bend needle
Yarn contamination		Count mixing occurs
Dust knit		Dust on the machine part
Star mark		<ul style="list-style-type: none"> ➤ Yarn tension variation during production ➤ Due to damage of needle latch
Fly		When lint is too much flying during fabric production
Needle mark		<ul style="list-style-type: none"> ➤ Needles are not cleans. ➤ Use of defected bent needle.
Thick & Thin Places		<ul style="list-style-type: none"> ➤ It causes due to yarn problem. If thick & thin places remain in yarn. ➤ Tension variation

Table: 3.6 Different Defect in Fabric



3.1.10 Knit Card

In Knitting section knit card is used to indicate some information . Such as;

- Order number
- Yarn type
- Buyer name
- Fabric type
- Colour
- GSM etc

3.1.11 Types of Yarn Used

- 100% cotton
- Mélange
- PC
- CVC
- Polyester
- Spandex
- Organic

3.1.12 Precaution

Mask and air plug should be used during production .



3.2 DYEING SECTION

3.2.1 Layout



Figure: 3.7 Layout of dyeing section



3.2.2 Organogram

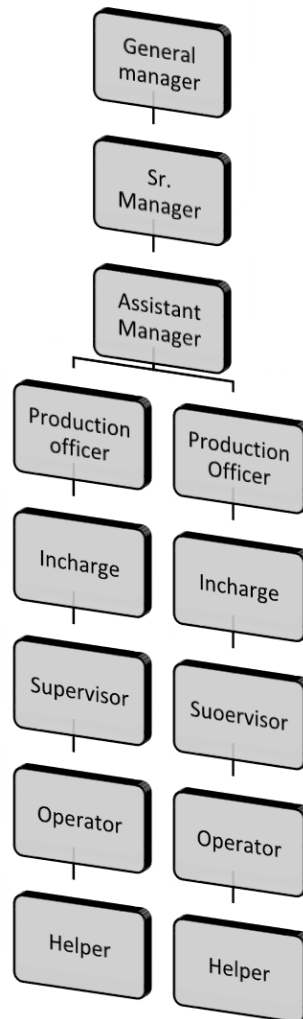


Figure: 3.8 Organogram of dyeing section

3.2.3 Lab

There are two type of testing

- i. Physical Test
- ii. Color Test



3.2.4 Physical Test Equipment

Incubator

Function

- Used for Perspiration, Saliva, Phenolic yellowing test

Washing machine

Function

- Used to wash the sample with standard washing chemical in order to assess the dimensional stability of sample.

Crock meter

Function

- Used to test the color fastness of fabric against rubbing

GSM cutter

Function

- Used to cut sample for GSM check.

Tumble dryer

Function

- Used to dry the sample.

Pilling tester

Two types

- a. ICI Pilling box
- b. Martindale pilling test

Function

- Used to test the resistance of fabric against pilling.

Shrinkage test

- Sample whose shrinkage test is to be done is placed on the table.
- Putting the glass template on sample and marking with unchangeable marker is done.



- Then the sample is washed at 60°C temperature for 90 minutes & Sample is dried out
- Three points on warp side and three points on weft side are checked to find out the dimensional change and mean value is taken for accurate result

PH meter

Function

- Used to determine the PH of a solution.

3.2.5 Color test Equipment

Auto disperse machine

Function:

Used for making a solution of dyes and chemical in accurate amount.

Data color Spectrophotometer

Function:

- Color matching
- Measuring color difference

Sample dyeing machine

Function:

- Used for dyeing the lab samples.

Water Hardness Tester

Function:

- Used to test the hardness of water.

Light box

Function:

- Checking color difference under different light source like D65, UV etc.

3.2.6 Process Dyeing and Finishing

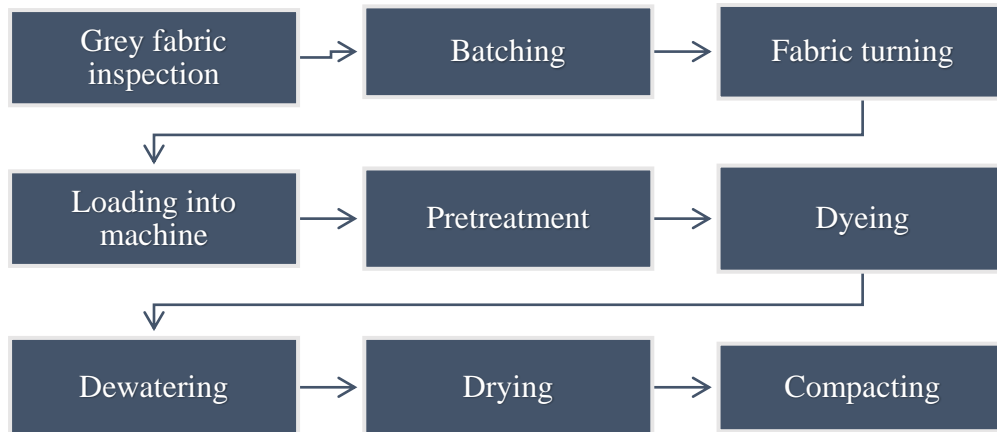


Figure: 3.9 Process of dyeing and finishing

3.2.7 Batch section

Batching is the process to get ready the fabrics which should be dyed and processed for a particular lot of a particular order. In batch section, quantity of fabric according to ratio of rib and body fabric is calculated.

3.2.8 Work done in Batch Section

- Receive the grey fabrics roll from knitting section or other source.
- Turn out the tubular fabric to safe the face side of the fabric from any type of friction during dyeing.
- Prepare the batch card of fabric for dyeing according to the following criteria-
 - Order sheet
 - Dyeing shade
 - Machine available
 - Type of fabrics (100% cotton, PC etc.)
- Send the grey fabric to the dyeing floor with batch card.
- Keep records for every previous dyeing.

Formula for Batching

Ratio Wise batch (kg) = (Batch quantity * Dia. Quantity) / Total quantity

3.2.9 Fabric Turning Machine

If fabric produced in tube form, fabric turning machine is used. It is used for turning into back side to face side of fabric before dyeing. It is done mainly using high air speed.

Function

- To make the back face side
- To remove some dirt from the fabric



Figure:
3.10
Fabric
turning
Machine

3.2.10 Dyeing machine Specification

Operation	No of machine		Capacity	Specification
For sample	Sample	4	50kg per machine	Brand name: Design temp. : Manufacturer : Origin: TURKIYE
Bulk	1		120 kg per machine	Brand name:DILMENLER
	2		250 kg per machine	

	1	500 kg per machine	Design temp. : 140 ⁰ c
	2	760 kg per machine	Manufacturer:
	1	1000 kg per machine	Origin: TURKIYE
	2	1400 kg per machine	

Table: 3.7 Dyeing machine Specification

3.2.11 Dyeing Machine



Figure: 3.11 Dyeing machine

3.2.12 Dyeing Process

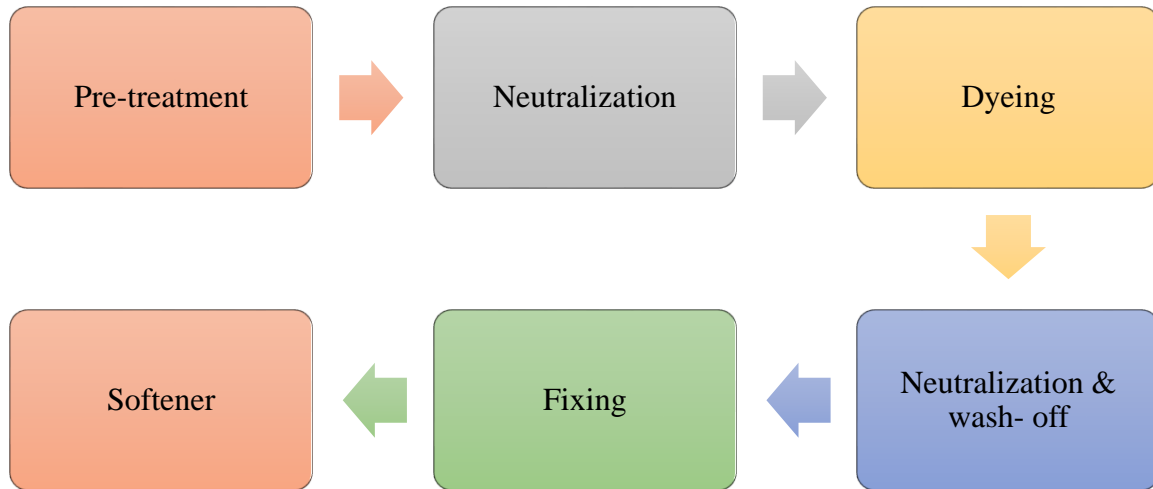


Figure: 3.12 Dyeing process

3.2.13 Chemical used in different process and their function

Process	Chemical	Function
Pre-treatment	Detergent	Used as wetting agent and also remove impurities.
	Sequestering agent	Used for remove water hardness.
	Ant creasing agent	Used for reducing crease effect of fabric during processing.
	Antifoaming agent	Antifoaming agent is used to resist foam formation during pretreatment and dyeing.
	Stabilizer	Increase rate of hydrogen peroxide
	Alkali	Dead fiber and dust remove.
	Bleaching agent	Increase the fabric whiteness.
Neutralization	Peroxide killer	Killed peroxide which is remaining in the material.
	Acid	pH control
	Enzyme	Remove Hairiness
Dyes &	Leveling agent	Used for uniform dyeing.
	Dye	For fabric coloration.
	Salt	Increase the exhaustion rate of the dyeing process



chemical	Soda	Control of the rate of reaction between reactive dye and cellulosic material.
Neutralization & Wash off	Acid	P ^H control
	Wash off	For removing unfixed dyes.
Fixing	Fixing agent	Fix the dyestuff and also remove unfixed dyes.
Softener	Softener	Soft the fabric.
	Acid	P ^H control

Table: 3.8 Chemical used in different process and their function

3.2.14 Recipe of bright white shade fabric

In here;

Lot weight: 405kg

M: L=1:6

Water= 2500L

Process	Chemical & amount	Run time & Temperature
Pre- treatment	PCL5- .8 gm. / l =2kg	40min
	2UD- .5 gm. / l =1.25kg	88 ⁰ C
	Soft- 1.5 gm. / l =3.75kg	
	C ₂ G- 1.2 gm. / l =2.5kg	
	Caustic- 3.3 gm. / l =7.5kg	
	H ₂ O ₂ - 9.1 gm. / l =22.5kg	
Neutralization	3BK- 2 % = 810gm	24min , 80 ⁰ C
	Acid- 1 gm. / l = 2.5kg	64min, 55 ⁰ C
	Enzyme- .15 % = 607gm	
	PH= 4.5-5.5	

Table: 3.9 Recipe of bright white shade fabric



3.2.15 Finishing

3.2.16 Slitting Machine

Manufacturer name: CorinoMacchine Spa

Year: 2011

SN. : 287/12

Type: Super slit

Origin: Italy



Figure: 3.13 Slitting Machine

Object of slitting machine

- To open tube fabric according to specific needle mark.

Function

- Remove excess water.
- Slit the tube fabric by the knife for opening of the fabric.

3.2.17 Stenter Machine

Manufacturer: BRUCKENER

Origin: Germany

Temperature range: 50-250° c

Pressure: 1.5-4.0 kg, normally 4 kg



Figure: 3.14 Stenter Machine

Function

- ❖ Width of the fabric is controlled by the stenter.
- ❖ Spirality controlled by the stenter.
- ❖ GSM of the fabric is controlled by stenter.

Chemical used in Stenter machine

- i. Anti-crease + Detergent for heat seat
- ii. Softener / fixing agent for color fabric

Temperature needed:



White: 110⁰c - 140⁰c

Black: 120⁰c - 160⁰c

Dark: 120⁰c - 120⁰c

Light: 130⁰c - 140⁰c

3.2.18 Compactor Machine

Brand Name: Lafer

Manufacturer: SPA Machine Tessili

Origin: Italy

Serial: 10KS03225



Figure-

3.15

Compactor machine

Function of Compactor machine

- i. Control GSM
 - If over feed is more then GSM is also more.
 - If over feed speed is less then GSM is also is less.
- ii. Control shrinkage
 - Shrinkage is controlled by proper over feeding



- iii. Control fabric Dia.
Dia is controlled by dia controlling meter scale
 - If over feed speed is more then dia of the fabric will be more.
- iv. Increase smoothness of fabric

Temperature needed

White: 100⁰c

Off white: 110⁰c

Dark: 130⁰c - 140⁰c

Fleece: 140⁰c - 160⁰c

3.2.19 Sueding Machine

Brand name: Lafer

Manufacturer: SPA Machine Tessili

Country: Italy

Cylinder: 1

Machine Speed: 40 m/min

Roller: 6

Pile: 3

Counter Pile: 3



Figure: 3.16 Sueding Machine

Function

Sueding is a mechanical finishing process in which a fabric is abraded on one side to raise or create a fibrous surface. This fibrous surface improves the fabric appearance, gives the fabric a softer, fuller hand.

Types of fabric used

- ✘ Rib 1/1, 1 /2,
- ✘ Lycra S/J
- ✘ Cotton S/J
- ✘ Fleece
- ✘ CBC, PC S/J



3.2.20 Brushing Machine

Brand name: Lafer

Manufacturer: SPA Machine Tessili

Country: Italy

Cylinder: 2

In upper cylinder: 14 pile & 14 counter pile

In lower cylinder: 14 pile & 14 counter pile



Figure: 3.17 Brushing Machine

Function

This process gives an attractive and smooth surface to the fabric. It is done by the machine having rotating cylinders with spiral blades. Its action resembles that of a lawn mower.

Fabric used

- Cotton Fleece
- Terry Fleece
- CBC Fleece

3.2.21 Rolling machine

Manufacturer: EhwhaGlotech

Origin: South Korea

Serial No: EH08-00104-R-26

Machine Speed: 100 m/min



Working width: 2650 mm

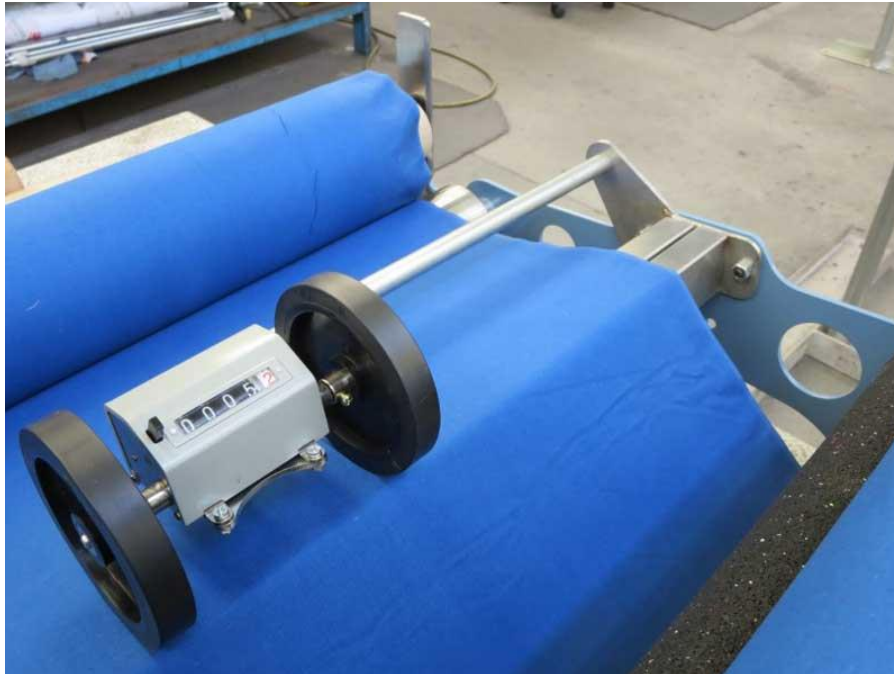


Figure: 3.18 Rolling Machine

Function

Used for fabric rolling.

3.2.22 Quality Control

- i. GSM check
- ii. Fabric inspection

Fabric inspection is done by 4. systems

28 points is acceptable in 100 sq. yards

- Up to 18: Grade A
- 19 – 28: Grade B
- Over 28 is reject

Defects Name

- Uneven Dyeing
- Crease mark
- Dye spot
- Wrinkle mark
- Rib mark



- Needle line
 - Hole
 - Lycra missing
 - Dirty spot
 - Iron spot
 - Patta
- iii. Shade check



3.3 GARMENTS SECTION

3.3.1 Layout of Garments Section



Figure: 3.19 Layout of garments section

3.3.2 Organogram

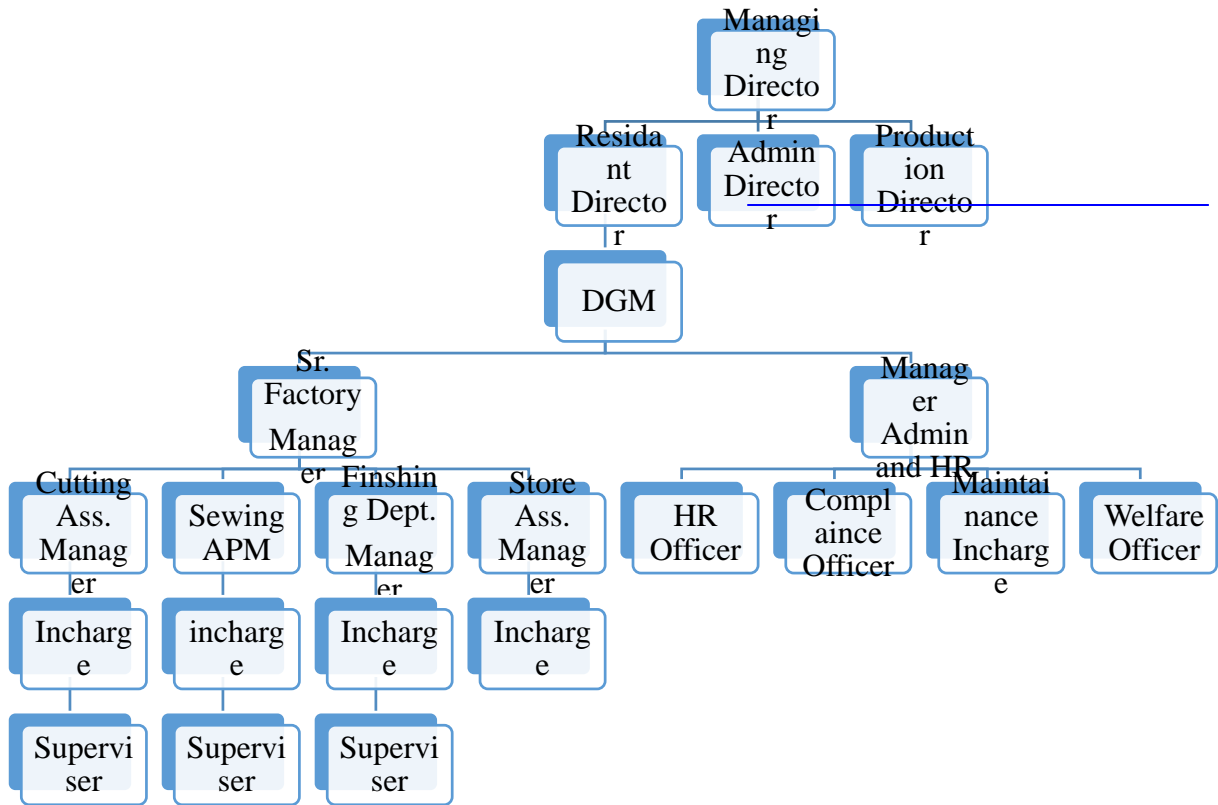


Figure: 3.20 Organogram of garments section

3.3.3 Machine Description

Section	Name of the Machine	Number of Machine
Store	Fabric inspection machine	2 pc
	Snap testing machine	3 pc



Lab	Washing Machine	1 pc
	Wascator	2 pc
	Tumble Dryer	3 pc
	Gyro Wash	2 pc
	Crock Master	2 pc
	Orbitor –pilling tester	2 pc
	Specto-Photometer	2 pc
Cutting	Spreading Machine	2 pcs
	Cutting Machine	12 pcs
Sewing	Plain m/c 1 needle	244 pcs
	Plain m/c 2 needle	39 Pcs
	Over lock 4 thread	297Pcs
	Flat bed	62 Pcs
	Flat lock cylinder bed	67 Pcs
	Flat lock small piping	25 Pcs
	Flat lock raw edge cutter	6 Pcs
	Feed of the arm	8 Pcs
	Button hole	17 Pcs
	Bar tack	7 Pcs
	Button stitch	9 Pcs
	PMD kanchi	4 Pcs
	Snap button	8 Pcs
	Rib cutter	5 Pcs
	Fusing machine	09pc
	Heat transfer trace	8cs
Finishing	Needle detector machine	2 pc
	Spot remover	3pc
	Thread soaking	1 pcs
	Iron become	32 pcs

Table: 3.10 Machine Description



3.3.4 CAD and Sample Section

Functions of CAD room:

- Producing pattern
- Marker making
- Calculate marker consumption



Figure: 3.21CAD section

Marker machine specification

Brand name: AUDACES

Manufacturer: Ioline Corporation

Origin: USA

(Marker length in inch + AL) x (Marker width in inch + AL) *GSM

Marker consumption= -----* 12

1550 x 1000 x number of pattern pieces

- Maximum marker width 72”
- Marker efficiency should be minimum 85%.
- Marker efficiency depend on wastage during cutting

Software



For marker making TUKA CAD software is used

Key factors during marker making

- Fabric width must be higher than marker width
- Fabric length must be higher than marker length
- Allowance must give in end and selvedge minimum 1”
- Grain line must be parallel to the line Wales in knitted fabric.



Figure: 3.22 Sample section

Function of sample section

- Working pattern making

Pattern which is used to make sample garment

Working pattern used as a base for manipulation when generating design pattern.

- Size set sample making

Machine in sample room

- Plain machine
- Overlock machine
- Flatlock machine
- Button hole machine

3.3.5 Store Section

Function

- Store the materials for order
- Issue and supply the materials to production unit
- Prepare Inventory report



Figure: 3.23 Fabric store

- After receiving fabric for each order then numbering different shade of color of the fabric role.
- Locally and Imported fabric is stored.
- Different types of fabric like 100% cotton single jersey, Terry, Fleece & spandex etc.



Figure:

store

3.24
Accessories

Different Types of Accessories

➤ Main label	➤ Elastic
➤ Care label	➤ Zipper

<ul style="list-style-type: none"> ➤ Size label ➤ Threads ➤ Twill tape ➤ Hanger sizer ➤ Hanger loop ➤ Price sticker ➤ Tissue paper ➤ Snap button ➤ Hang tag ➤ Hanger 	<ul style="list-style-type: none"> ➤ Hit seal label ➤ Carton ➤ Poly ➤ Rope ➤ Button ➤ Garment Marking Chalk ➤ Lock pin ➤ Poly sticker ➤ Gum tape ➤ Eyelet
--	---

Table: 3.11 Different Types of Accessories

3.3.6 Fabric Relaxation Procedure

- 100% cotton single jersey and terry
Minimum 12 hours
- Single jersey cotton 5% Spandex & rib
Minimum 24 hours
- Fleece 100% cotton
Minimum 16 hours
- Fleece Polyester/ cotton
Minimum 12 hours

3.3.7 Lab Section



Figure: 3.25 Garments Lab

Equipment's List

- Electric balance
- GSM cutter



- Washing machine
- Snap pull test machine
- Light box

3.3.8 Shrinkage Checking Procedure

- 10% roll of fabric from a lot for shrinkage test.
- Take 25”*25” fabric for washing according to Buyer instruction.
- Then wash the fabric for 3 times
- Each time 10 minute wash + 5 Minute dryer
- After that find out the measurement of fabric by using formula

$$\text{(Before wash – After wash) * 100}$$

Formula= -----

Before wash

3.3.9 Light Box Checking Instruction

Light box is used for checking fabric shade

- F - Florescent
- D65 - Day Light
- TL 84 - Tube Light
- UV - Ultra Violet
- CWF - Color White Fluorescent used for checking white and blue shade

3.3.10 Spreading

Fabric spreading is the part of apparel manufacturing process. Fabric spreading is done after marker making. Spreading of fabric can be defined as the smooth laying out of the fabric of specific length and width. The marker is laid on the top most layer of the fabric. Cutting operation is done after completing fabric spreading. Cutting performance depends on fabric spreading. Spreading is done manually



Figure: 3.26 Fabric spreading

Requirements of Fabric Spreading

- Alignment of fabric ply,
- Correct ply tension,
- Fabric must be flat,
- Elimination of fabric defects,
- Correct ply direction and lay stability

3.3.11 Cutting Section



Figure: 3.27 cutting Section

3.3.12 Process of Cutting

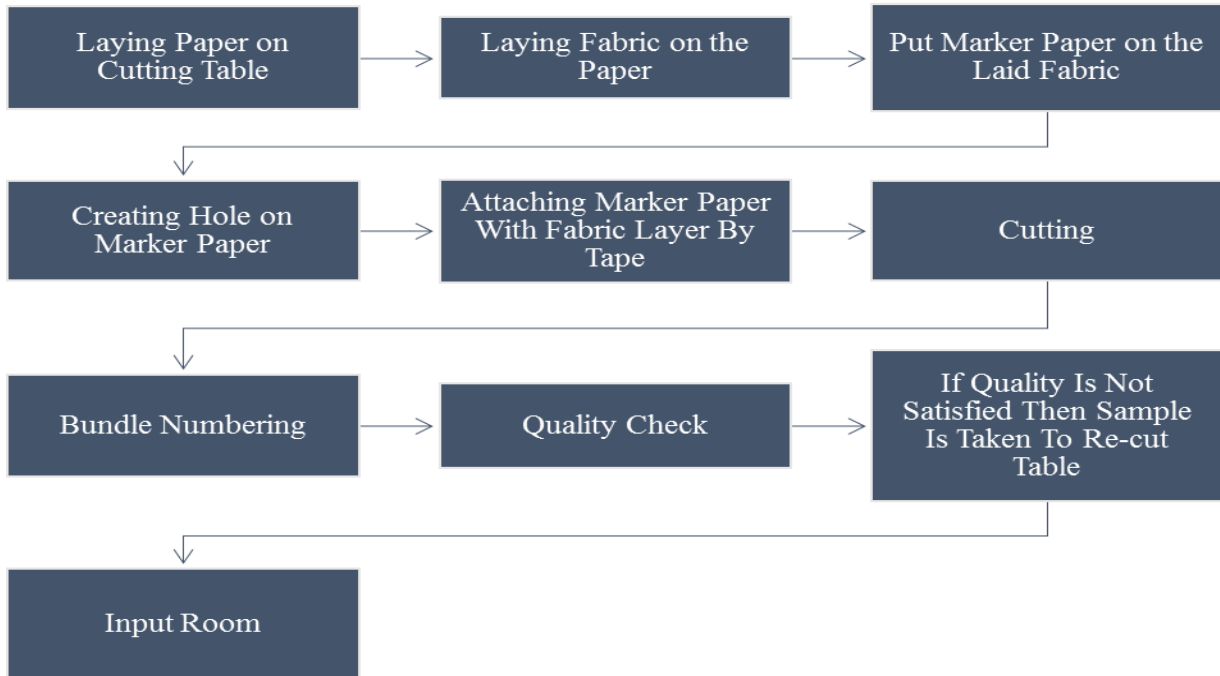


Figure: 3.28 Process of cutting

3.3.13 Machine in Cutting Section

Machine name	End / lay cutter machine
--------------	--------------------------

Specification	Brand name: Spreading Machine Manufacturer: japan Origin: LEEWAI
Function	Used for cutting end of fabric layer during fabric spreading

Table: 3.12 End / lay cutter machine description



Figure: 3.29 End cutter machine

Machine name	Cutting machine
Specification	Model: BLUE STREAK II Manufacturer: Eastman machine company

	Type: Straight knife Origin: USA Blade Length: 12” Blade Width: 1.5 cm Blade Thickness: .5 mm
Function	Used for cutting fabric layer according to maker.

Table: 3.13 Fabric cutting machine description



Figure: 3.30 Fabric cutting machine

3.3.14 Parts of Cutting Machine with Their Functions

- Plate: To stand the machine and help to move the machine.
- Feed: To hold the layer of fabric by pressure.
- Knife: To cut the layer of fabric precisely.
- Handle: To help to move the whole cutting machine according to design.
- Power switch: It is used to run and stop the machine.
- Oil box: To supply oil or lubricant to the machine parts.
- Motor: To give reciprocating motion to the knife for cutting.
- Sharpening device: To make sharp the knife edge when required.



3.3.15 Points Should Concern Fabric Cutting

- During Cutting operator must be used metal gloves.
- Precision in cut i.e. the dimension of pattern and fabric parts is cut should be same.
- The cut edge must be cleaned.
- Infused edge.
- Drill hole and size should be appropriate and it will be placed in its right place. If it is too large it would be seen after sewing. But if it is too small then it can be blocked easily.
- Should position the pattern pieces on the fold or on the grain line as indicated.
- Without shoe operator should not use cutting machine.
- Mask must be used during cutting.

3.3.16 Lay Height

- Single jersey/ spandex/ interlock: Maximum 2-2.4"
- Single jersey/Cotton & Others: Maximum 3-5"
- Fleece Maximum 4-5"
- Mesh/Dazzle: 2"

3.3.17 Cutting Table Specification

- Total Cutting Table: 4 pcs
- Table Height: 38"
- Table Width: 99.5"
- Table Length: 930"

3.3.18 Wastage during Cutting

- Ends of ply losses.
- Selvage loss.
- Loss of fabric in roll.

3.3.19 Sewing Section

In the apparel industry or clothing industry, sewing section is the main department for garments manufacturing. When all the garments are complete to cut in the cutting section, all of these cutting parts are sending to sewing department for making garment. In this section different cutting parts are joining together with the help of different types of sewing machine, threads and needle. To complete the perfect garment easily and timely Floor in-charge always maintains a working procedure. Working procedure is also called as process flow chart of sewing department in the garments industry.



3.3.20 Process

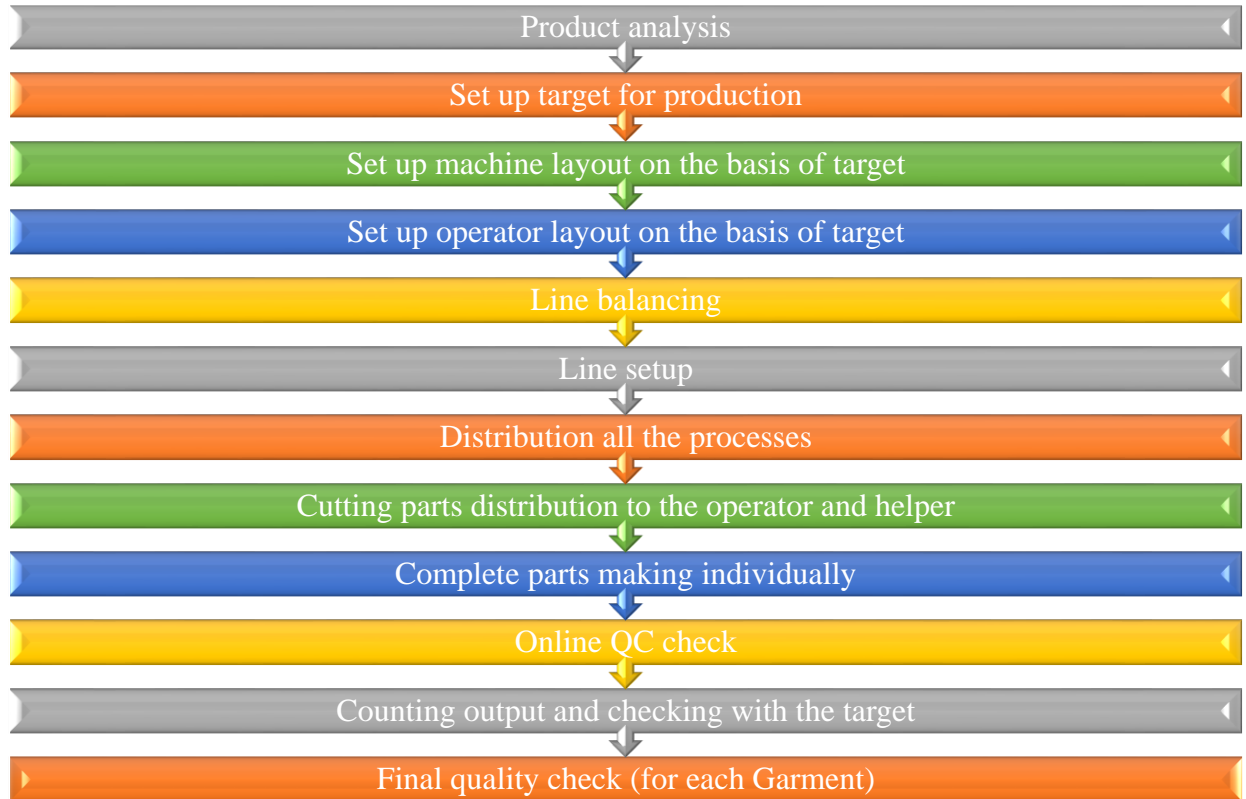


Figure: 3.31 sewing process

3.3.21 Different Type's Machineries with Functions in Sewing Section



Figure: 3.32 Plain machine

Application:

- Bottom hemming
- Belt making
- Loop tack stitch
- Pocket joint stitch
- Zipper joint



Figure:

3.33 Over lock machine

Application:

- Neck piping
- Sleeve piping
- Sleeve joint



Figure: 3.34 Flat bed machine

Application:



Figure: 3.35

Flat lock cylinder bed machine

Application:

- Belt top seam
- Back tape joint

- Sleeve hem
- Leg hem



Figure: 3.36 Button Hole machine

Application:

To create a hole for button



Figure: 3.37 Heat Seal machine

Application:

Attached main label with garments



Figure: 3.38 Snap Button machine

Application:

Attached snap button and eyelet in garments.



Figure: 3.39 Feed of the Arm machine

Application:

Used for neck piping



Figure: 3.40 Fusing Machine

Application:

For interlining



Figure: 3.41 Button attaching machine

Application:

To attached button in garment



Figure: 3.42PMD Kanchimachine

Application:

Waist band



Figure: 3.43 Rib Cuttermachine

Application:

Cutting rib and make roll



Figure: 3.44Bar tackmachine

Application:

Bar tack stitch



Figure: 3.45 Flat lock raw edgecuttermachine

Application:

For body hem.

Table: 3.14 Sewing Machine

3.3.22 Sewing Machine needle information

Machine Name	Needle Name	Size
Plain	Db	7-12
Over Lock	Dc	7-12
Flat Lock/Feed of the Arm	Uy	7-12
Button Hole/ Bartech	dp-5	11-14
Button Attaching	Dp-17	11-14

Table: 3.15 Sewing Machine needle information



3.3.23 Machine layout (T-shirt)

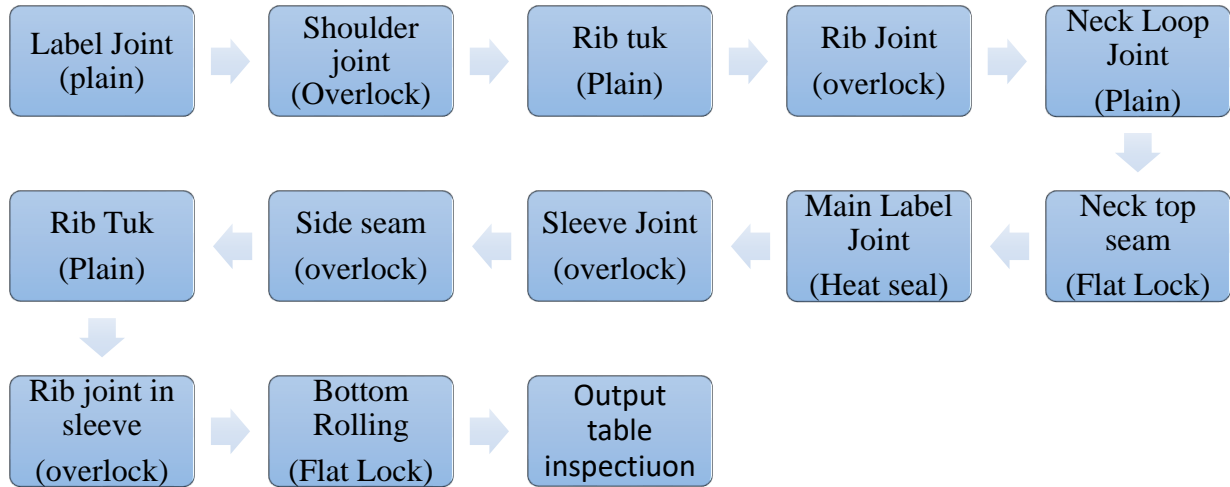


Figure: 3.46 Machine layout (T-shirt)

3.3.24 Machine layout (legging pant)

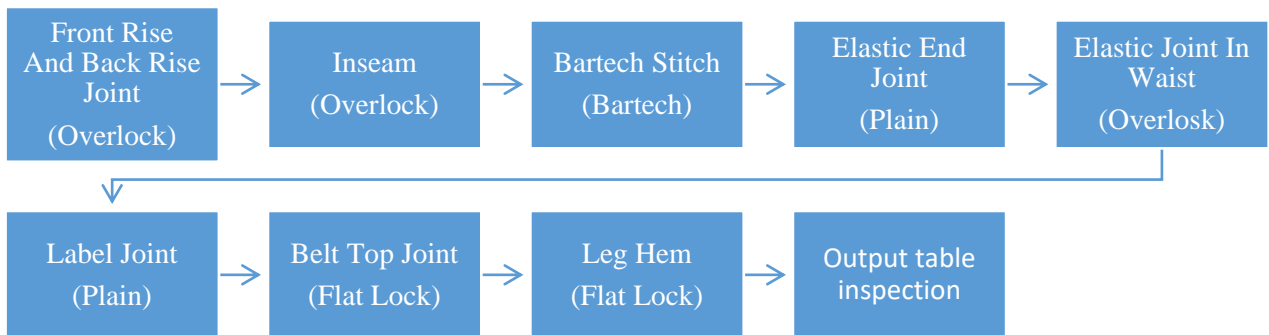


Figure: 3.47 Machine layout

3.3.25 Line Target/Hour

In this garments machine cost per day \$40

Cost per machine * Number of machine per product in line = Total cost

CM cost / dz. Of garments

----- = CM cost/pcs



12

Total cost

----- = production/day

CM cost/pcs

In garments section daily 10 hours is available.

3.3.26 Quality control in sewing section

Sewing defects

- Needle damage
- Skipped stitch
- Seam pucker
- Wrong stitch density
- Uneven stitch
- Defected stitch
- Oil spot

Seaming defects

- Uneven width
- Uneven seam line
- Not secured by back stitch
- No matching of check or stripe
- No matching of seam
- 4 point check

3.3.27 Finishing Section



Figure: 3.48 Finishing section

3.3.28 Finishing Work in Process

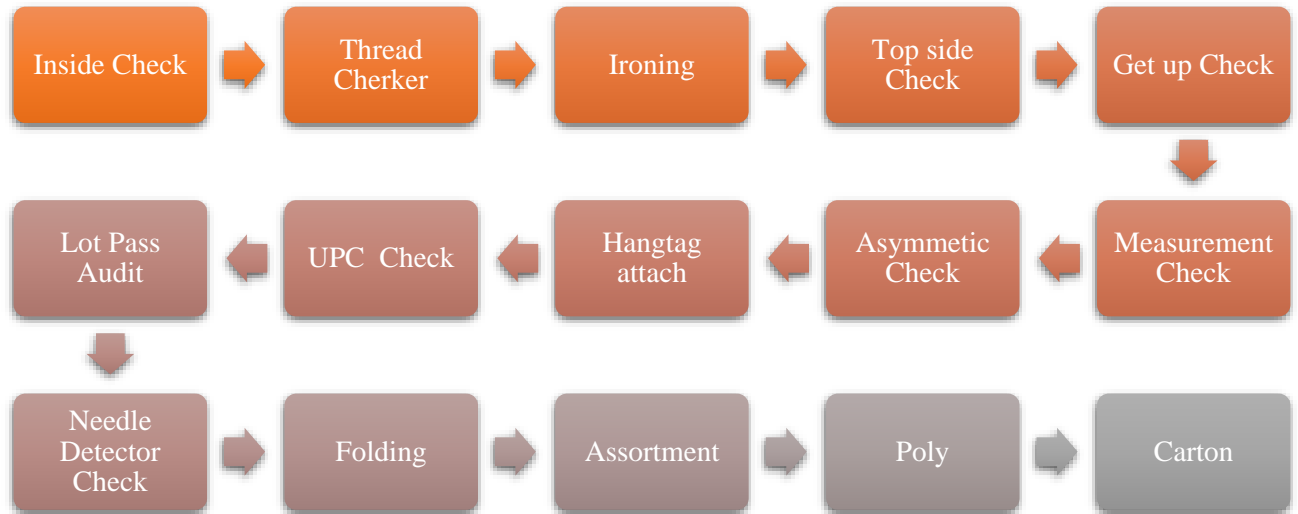









Figure: 3.49 Finishing Work in Process

3.3.29 Process and Their Function

Process	Function	View
Inside Check	Check defect in inner part of garments. Like missed stitch, uneven seam.	
Thread checker	Remove loose thread from garments part.	

<p>Ironing</p>	<p>Create a shape of garments.</p>	
<p>Top side Check</p>	<p>Check defect in top part of garments</p> <p>Like,</p> <p>Uncut thread, Skipped stitch,</p>	
<p>Get-up check</p>	<ul style="list-style-type: none"> ➤ Check Cutting small thread ➤ Check Whether color shade is right or not ➤ Check Spot in garments 	
<p>Measurement check</p>	<p>Check measurement according to buyer requirement</p>	
<p>Asymmetric check</p>	<p>Check uneven parts of garments.</p>	

<p>Hang tag attach</p>	<p>Hang tags are attached with a garment, such as,</p> <p>a) Price tag</p> <p>b) Tag of garment type</p>	
<p>UPC check</p>	<p>Checking barcode and style number of garments</p>	
<p>Lot pass audit</p>	<p>In here takes number sample from a lot then check all faults. If faults are found greater than the acceptable range then the lot is rework.</p>	
<p>Needle detector check</p>	<p>It identifies needles in garments if have.</p>	
<p>Folding</p>	<p>Pressed garments are folded in a specific dimension. This work is usually done by</p>	

	women labors.	
Assortment	In this section garments are assorted in different size and color in a ratio.	
Poly	In this section garments are packed in poly.	
Carton	Poly is filled in carton.	

Table: 3.16 Finishing Process and Their Function

3.3.30 Final Inspection

Garments are inspected by AQL. In this system samples are collected inspected by statistically from the lot size and will decide the lot of garments to be granted or rejected. AQL is mainly used in final inspection after garment making.

Defect Classification



The client defines the AQL and the maximum number of defective goods allowed in the sample size. Defects detected during visual inspection are usually classified within 3 categories: “Critical”, “Major” and “Minor”

Lot Size	Inspection Level		
	1 (Light)	2 (Normal)	3 (Tight)
2 to 8	A	A	B
9 to 15	A	B	C
16 to 25	B	C	D
26 to 50	C	D	E
51 to 90	C	E	F
91 to 150	D	F	G
151 to 280	E	G	H
281 to 500	F	H	J
501 to 1200	G	J	K
1201 to 3200	H	K	L
3201 to 10000	J	L	M
10001 to 35000	K	M	N
35001 to 150000	L	N	P
150001 to 500000	M	P	Q
500001 to over	N	Q	R



Code Letter	Sample size	AQL 2.5	AQL 4.0	AQL 6.5
A	2	≤0	≤0	≤0
B	3	≤0	≤0	≤0
C	5	≤0	≤0	≤1
D	8	≤0	≤1	≤1
E	13	≤1	≤1	≤2
F	20	≤1	≤2	≤3
G	32	≤2	≤3	≤5
H	50	≤3	≤5	≤7
J	80	≤5	≤7	≤10
K	125	≤7	≤10	≤14
L	200	≤10	≤14	≤21
M	315	≤14	≤21	≤21
N	500	≤21	≤21	≤21
P	800	≤21	≤21	≤21
Q	1250	≤21	≤21	≤21
R	2000	≤21	≤21	≤21

Table: 3.17&18 AQL chart

Allowed defect according to lot size

For all sample size, Critical defect= 0

Major= 2.5

Minor= 4.0 / 6.5.



3.3.31 Merchandising Department

Merchandising is the department which mediates marketing and production departments. Sometimes, merchandising department will also have to do costing and pricing.

Work Done by Merchandiser

- Buyer searching
- Costing and consumption
- Order receive
- Sample approval
- Prepare TNA
- Fabric and accessories booking
- Follow up lead time
- Production follow up
- Delivered good at right time and right quantity

3.3.32 Calculation of Knit Fabric Consumption (T-shirt)

Body fabric consumption per dozen, (all measurements in cm)

$$= \frac{(\text{Chest width} + \text{Sleeve length} + \text{Body length}) \times \left(\frac{\text{Chest width}}{2} + \text{Sleeve length}\right) \times \pi}{10000} + \text{Waste \%}$$

Neck Rib Consumption:

Width = Neck width x 2 + 2 cm (Round)

Total Height = Rib Height X 2 + Allowance

3.3.33 Points for consumption

- Types of fabric and fabric GSM will be confirmed by the buyer.
- For body length and sleeve length, approximate sewing allowance should be needed at body hem, shoulder joint, sleeve hem and armhole joint.
- For chest width, approximate sewing allowance should be needed at both side.
- And approximate fabric wastage in various stages is 5 to 15%.

3.3.34 Costing of a Basic T-shirt

Total fabric consumption = 2 kg/dz.

Actual fabric consumption = 2 + (13% process loss + 5% cutting wastage)
 = 2.38 kg/dz.

Yarn cost ----- \$2.7/kg



Knitting cost-----\$.2/kg

Dyeing cost-----\$1.7/kg

Total-----\$4.6/kg

Others

CM (cost of making) ----- \$ 6.00

Accessories cost ----- \$ 3.50

Chest print ----- \$ 2.00

Lab test ----- \$ 1.00

Others cost-----\$3.00

Total -----\$14.50

In total cost /dz. = (\$ 4.6×2.38) +\$ 14.50 = \$ 23.7/dz.

Buying house (%) + profit % = 5% + 10%

= 15%

Now cost of a t-shirt= (\$23.7+15%) / 12

Per pcs FOB = \$2.28

3.3.35 Thread Requirement Chart

Machine name	Classification	Required thread per inch
Plain machine	1	2.5”
Plain machine	2	5”
Over lock	3	13.25”
Over lock	4 Thread	15.75”
Over lock	5 Thread	18.75”
Flat lock	3 Thread	16.75”



Flat lock	5 Thread	22.25"
Bar tack stitching		7"per operation
Button hole stitching		7"per hole
Button attaching 2 hole		3" per button
Feed of the arm		7" for 1 needle
Kanchi stitching		7" for 1 needle
Back tape stitching		7" for 1 needle

Table: 3.20 Thread Requirement Chart

3.3.36 Production Planning and Control (PPC) Department

Production planning and Control department is one of the important department for the apparel manufacturing company.

Working area:

- Job Scheduling

Preparation of time and action calendar for each order from order receiving to shipment.

- Material Resource Planning

Preparation of Material requirement sheet according to sample product

- Loading production

Planner defines which style to be loaded to the production line and how much quantity to be loaded.

- Process selection & planning

According to the order requirement PPC department select processes for the orders. Sometime extra processes are eliminated to reduce cost of production.

- Capacity planning

PPC department plays a major role during order booking. They decide how much order they should accept according to their production capacity.

- Line planning



Line planning with daily production target for the production line.

- Follow up

PPC department keeps close look whether everything is progressing according the plan. They update order wise completed tasks on the Time & action Calendar. .

3.3.37 Maintenance Section



Figure: 3.49 Maintenance section

Maintenance is a process by which equipment is looked after in such a way that trouble free.

- eAll machines are checking in every month.
- Oil change depends on machine use.
- Mostly cutting machine oil change in every 7 days.
- If any problem occurs exchange machine or solve machine problem as early as possible.



3.4 PRINTING SECTION

3.4.1 Layout

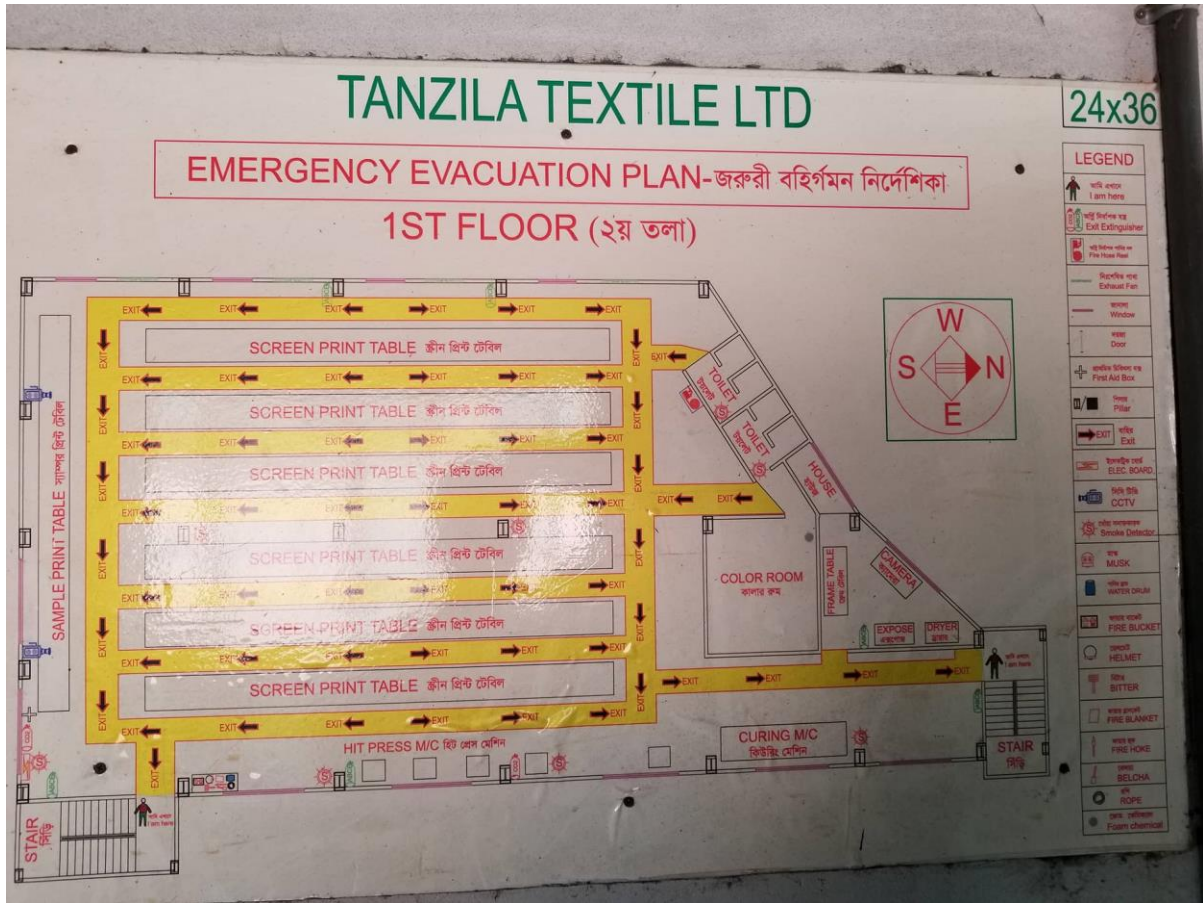


Figure: 3.50 Layout of printing section



3.4.2 Organogram

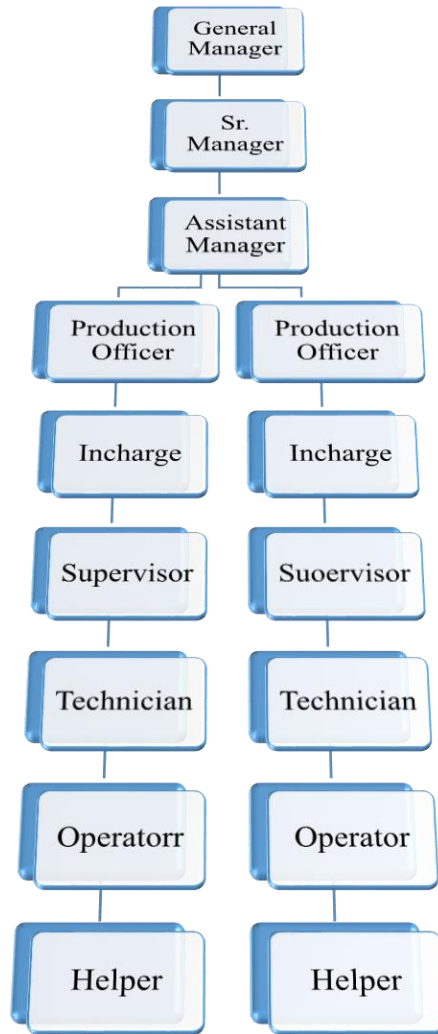


Figure: 3.51 Organogram of printing section

3.4.3 Printing Type

AOP- All over printing/ fabric print



Print Types

- Pigment (for all fiber)
- Reactive (only for cotton)
- Discharge
- Metallic/Glitter
- Burn Out

3.4.4 Printing Process

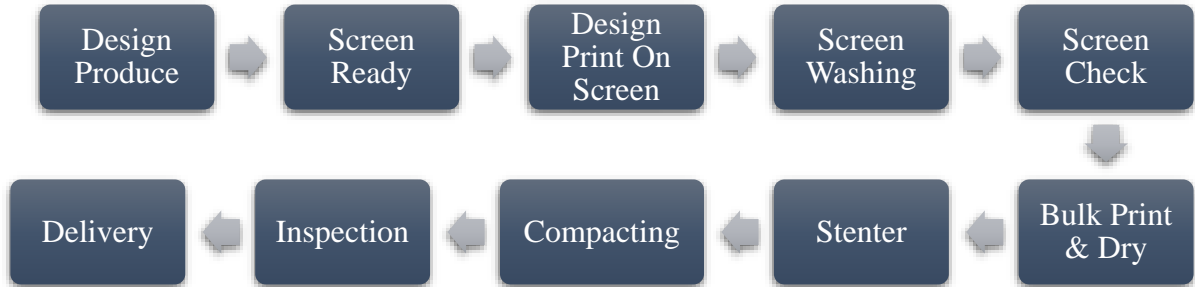


Figure: 3.52 Printing process

3.4.5 Screen Making Process

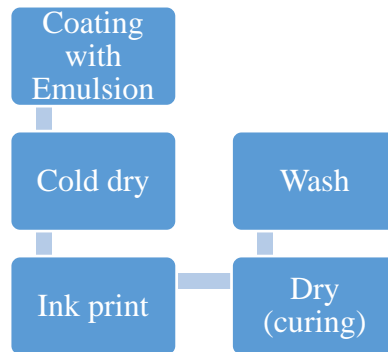


Figure: 3.53 Screen making process

3.4.5 Machine

- Auto Printing Machine

Brand name: SROQUE

Origin: Portugal

- Auto Plate Shot

Origin: Switzerland



➤ Curing

3.4.8 Chemical Used in Printing

Name	Function
Binder	To fix color
Thickener	Maintain viscosity
Softener	Soft
Urea	To reduce friction
Liquor Ammonia	P ^H control
Fixing agent	Fixation
Resist salt	Prevent color bleeding

Table: 3.21 Chemical used in printing

3.4.9 Finishing

Small Compressor

Function

- Dye is fixed by subjecting the print to hot air by using heat of steam.
- Mainly used after reactive color print of cotton fabric.

3.5 ETP



Figure: 3.54 ETP



3.5.1 Process of Bio-chemical ETP

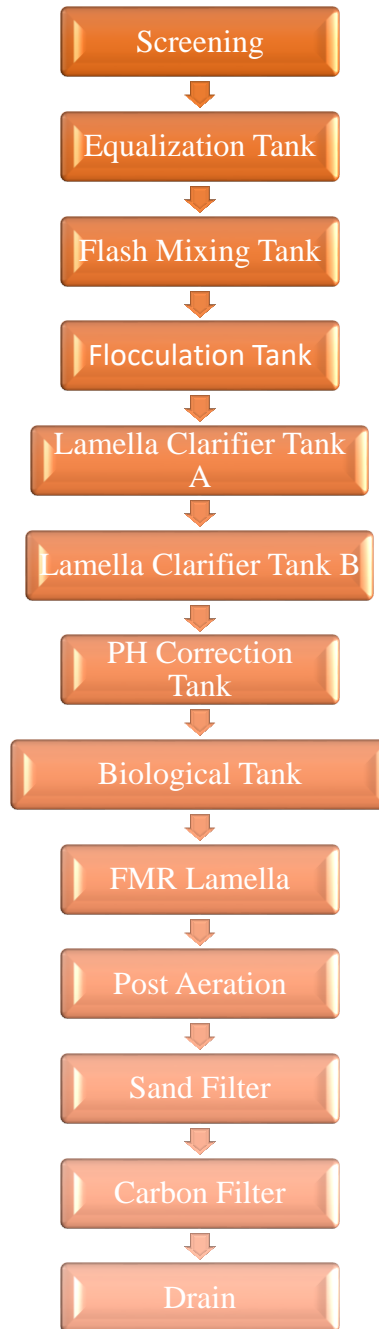


Figure: 3.55 Process of Bio-chemical ETP



Table: 3.22 Function of ETP processes

Process	Function	3.5.3 Tested treated effluent parameter	
Screening	Extra-large material removes from water.		
Equalization Tank	Different color water mixing and cooling. Temperature controlled around 50 ⁰ c		
Flash Mixing Tank	Produce sludge. Chemical used: FESO ₄ . 7H ₂ O		
Flocculation Tank	Flocculate sludge in water. Polyelectrolyte is used for flocculation		
Lamella Clarifier Tank A	Sludge separate from water.		
Lamella Clarifier Tank B	Sludge separate from water.		
PH Correction Tank	P ^H control in water.		
Biological Tank	Bacteria break color particle and feed. Some sludge is produced.		
FMR Lamella	Remaining sludge is separated.		
Post Aeration	Blowing air for providing oxygen to bacteria for treating and stabilizing the wastewater.		
Sand Filter	Water filtration		
Carbon Filter	Water filtration		
Drain	Water pass out in river.		



TSS
TDS
BOD

Table 3.23 ETP treatment parameter

3.5.4 Chemical Used in ETP

Lime:

Used for cleaning the water

Polyelectrolyte:

To Flocculate sludge

Urea & DAP:

Used for bacteria feed.

HCL:

Neutralize the waste water controlling the PH.

Ferrous sulphate:

Create sludge.

3.5.5 Equipment for testing

- TDS meter
- DO meter
- PH meter
- Microscope
- Temperature machine

3.5.6 Capacity of treat water

165 m³/day



Impact of Internship



4.1 Knitting Section

In knitting section we have learned about the following topics:

- Introducing with different types of knitting machine.
- Know about knitting faults.
- Knowing different types of fabric.
- Four point system.
- Knitting fabric inspection system.
- Knowing about fabric inspection machine .

4.2 Dyeing Section

In dyeing section we have learned about the following topics:

- Introducing different type of dyeing and finishing machine.
- Different types of dyeing and finishing machine functions.
- Inspection system.
- How to GSM control in stenter and compacting machine.
- Batch section work.
- Different types of test in lab.

4.3 Garments Section

In garments section we have learned about the following topics:

- Know about different types of sample.
- Introducing with CAD.
- Know about marker.
- How to make marker for production.
- How to improve marker efficiency.
- Know about fabric spreading procedure.
- Introduced to different cutting machine.
- Introducing different types of sewing machine.
- Know about different types of sewing machine function.
- Know about different type of stich.
- Know about different types of stitches.
- Inline inspection & Table inspection
- Final inspection.
- Daily production target calculation
- Inspection procedure of buyer.
- Maintenance section working process.etc.

4.4 Printing Section

In printing section we have learned about the following topics:



- Introducing different types of printing methods.
- Know about different types of chemicals.
- Method of screen preparation.
- Know about print paste.
- Different types of printing and finishing machine functions.
- Know about limitation of printing machine. etc.

4.5 ETP

In ETP section we have learned about the following topics:

- Know about function of ETP.
- Know details about bio-chemical ETP.
- Process of bio-chemical ETP.
- Different types of chemical used in bio-chemical ETP.
- Capacity of bio-chemical ETP.
- Know about different type's water test. etc.

Conclusion

Tanzila Textile LTD already established a brand name in Garments industry. Now they have lots of foreign customers and demand for their Garments is increasing day by day. Tanzila Textile LTD is providing washing, printing, embroidery facilities and sometimes accessories for Tanzila Textile which make production much easier. So if it can maintain its quality and standard it can have a huge business potential



SL No.	Name of the Figure	Page No.	
1	2.1	Tanzila Textile Ltd	17
2	2.3	Factory layout	20
3	2.4	Factory organogram	23
4	3.1	Knitting Section	30
5	3.2	Layout of knitting section	30
6	3.3	Organogram of knitting	31
7	3.4	Working Process in Knitting Section	34
8	3.5	Yarn Passage Diagram	35
9	3.7	Layout of dyeing section	40
10	3.8	Organogram of dyeing section	41
11	3.9	Process of dyeing and finishing	45
12	3.10	Fabric turning Machine	47
13	3.11	Dyeing machine	49
14	3.12	Dyeing process	49
15	3.13	Slitting Machine	53
16	3.14	Stenter Machine	54
17	3.15	Compactor machine	56
18	3.16	Sueding Machine	57
19	3.17	Brushing Machine	58



20	3.18	Rolling Machine	60
21	3.19	Layout of garments section	63
22	3.20	Organogram of garments section	64
23	3.21	CAD section	67
24	3.22	Sample section	68
25	3.23	Fabric store	69
26	3.24	Accessories store	70
27	3.25	Garments Lab	72
28	3.26	Fabric spreading	74
29	3.27	cutting Section	75
30	3.28	Process of cutting	75
31	3.29	End cutter machine	76
32	3.30	Fabric cutting machine	78
33	3.31	sewing process	80
34	3.32	Plain machine	81
35	3.33	Over lock machine	81
36	3.34	Flat bedmachine	81
37	3.35	Flat lock cylinder bedmachine	81
38	3.36	Button Holemachine	82
39	3.37	Heat Sealmachine	82
40	3.38	Snap Buttonmachine	83
41	3.39	Feed of the Armmachine	83



42	3.40	Fusing Machinemachine	83
43	3.41	Button attachingmachine	83
44	3.42	PMD Kanchimachine	84
45	3.43	Rib Cuttermachine	84
46	3.44	Bar tackmachine	84
47	3.45	Flat lock raw edgecuttermachine	84
48	3.46	Machine layout (T-shirt)	85
49	3.47	Machine layout	86
50	3.48	Finishing section	88
51	3.49	Finishing Work in Process	88
52	3.49	Maintenance section	101
53	3.50	Layout of printing section	103
54	3.51	Organogram of printing section	104
55	3.52	Printing process	105
56	3.53	Screen making process	106
57	3.54	ETP	108
58	3.55	Process of Bio-chemical ETP	109