



Daffodil
International
University

Faculty of Engineering
Department of Textile Engineering

REPORT ON
Industrial Attachment
At

Beximco Industrial Park

Course Title: Industrial Attachment
Course Code: TE 331

Submitted By

Asadullah ID: 151-23-4235
Risvi Ahmmed ID: 151-23-4251
Sumia Gulshan Mitu ID: 151-23-4253

Supervised By

Mousumi Rahaman Hashi
Lecturer
Department of TE
Daffodil International University

This Report Presented in Partial Fulfillment of the Requirements for the Degree of **Bachelor of Science in Textile Engineering**.

Advance in Apparel Manufacturing Technology

Duration: From October 01, 2018 to November 30, 2018



DECLARATION

We hereby declare that, this work has been done by us and not copied from elsewhere; we also declare that neither this report nor any part of this report has been submitted elsewhere for award of any degree or diploma.

SUBMITTED BY:

.....
Asadullah
ID: 151-23-4235

.....
Risvi Ahmmed
ID: 151-23-4251

.....
Sumia Gulshan Mitu
D: 151-23-4253

LETTER OF APPROVAL

It is herewith certified that **Asadullah, Risvi Ahmmed & Sumia Gulshan Mitu** bearing ID respectively 151-23-4235, 151-23-4251 & 151-23-4253 Department of Textile Engineering, Daffodil International University, Dhaka, Bangladesh, has carried out their Industrial attachment at Beximco Industrial Park under my direct supervision. They have successfully carried out their internship and ready to present their report, which is required in partial fulfillment of their B.Sc degree.

I have gone through the final draft of the report and recommend its submission for the degree of Bachelor of Science in Textile Engineering.



Supervisor

Mousumi Rahaman Hashi
Lecturer
Department of Textile Engineering
Faculty of Engineering
Daffodil International University

ACKNOWLEDGEMENT

First of all we would like to express our devotion to the most gracious and the most merciful Allah, Alhamdulillah, since we have been able to finish our Industrial attachment after two months long hardworking.

We wish to express our gratitude to our supervisor, Mousumi Rahaman Hashi, Department of Textile Engineering, Daffodil International University, for giving us the opportunity, trust and freedom that allowed us to explore in the field of our industrial work. It is indeed a great pleasure for us to express our sincere and profound gratitude to her for her scholastic guidance, constructive suggestions and encouragement which we received from her in order to complete internship and to write this dissertation.

A very special gratitude goes to Dr. S.M. Mahbub Ul Haque Majumder, Founder and Professor, Department of Textile Engineering, Daffodil International University.

We are indebted to Dr. Md. Mahbubul Haque, Professor & Head, Department of Textile Engineering, Daffodil International University for his unremitting and valuable guidance and suggestions.

We are also very much grateful to Ashraf Ahmed, IE Manager at Beximco Industrial Park for his suggestion and support. Many thanks for everything.

Our special thanks go to all production officers, supervisors and stuffs of The IE Department at Beximco Industrial Park for their helpful hands and cordial co-operation.

Finally, we are grateful to all of my teachers who have helped us all over the four years in this Textile Engineering Department.

Special Thanks to our family for their unconditional support, love and inspiration which gave us incentive to complete this research work successfully. We would like to thank all of our friends with whom we have worked and to all our well-wishers for their moral support throughout this research work.

DEDICATION

It is our genuine gratefulness and warmest regard that we dedicate this work to our beloved Parents & respected Teachers.

Contents

Chapter-I.....	1
EXECUTIVE SUMMARY	1
1.1 EXECUTIVE SUMMARY.....	2
Chapter-II	3
INFORMATION ABOUT FACTORY	3
2.1 Introduction:	4
2.2 History of Project Development:	4
2.3 Industrial Mission:	5
2.4 Industrial Vision:	5
2.5 Industrial Commitment to the Environment:	5
2.6 General Information about the Factory:.....	5
2.8 Organogram of Beximco Apparel Division:.....	9
Chapter-III	10
DESCRIPTION OF THE ATTACHMENT	10
3.1 Administration:	11
3.2 Human Resource:.....	11
3.3 Accounts:	12
3.4 Store:.....	12
3.5 Merchandising:	13
3.7 From fiber to consumer:	15
3.9 Cutting:	15
3.9.1 Cutting sequence:.....	16
3.9.2 Fault of fabric in cutting section:	17
3.9.3 Cutting machine:.....	17
3.10 Sewing:	18
3.10.1 Machine of sewing:.....	18
3.10.2 Types of needle:.....	19
3.10.3 Making shirt:.....	19
3.10.4 The Measurement Process (Shirt):.....	20
3.10.4 The Manufacturing Process (Shirt):.....	22
3.10.5 Operation Bulletin for Tencel shirt	24
3.11 Washing:	25
3.11.1 Type of washing:	25
3.11.2 Washing Product:.....	25
3.11.3 Mission and Vision:	26
3.11.4 Production Flow Chart of Garments Washing:.....	26
3.11.5 Production flow chart of garments dyeing:.....	27
3.12 Wet Process Section:	28
3.12.1 Industrial washing machine	28

3.12.2 Hydro Extractors Machine:.....	29
3.12.3 Machine description of Dryer Section:	30
3.13 Dry Process Section:	32
3.13.1 Industrial sand-blasting guns:	32
3.13.2 Industrial Hand Sanding Machines:.....	32
3.13.3 Whickering:	33
3.13.4 Hand scraping:	33
3.13.5 Wrinkle process:	34
3.13.6 Tagging:	36
3.13.7 Tacking & Grinding:.....	36
3.13.8 Destroy effect:	36
3.13.9 Potassium Permanganate Sponging/ Brushing:	37
3.14 Chemical Section:	38
3.14.1 Raw Materials Used In Garments Washing:.....	38
3.14.2 Raw Materials Used in Garments Dyeing:	41
3.15.3 Garment Defects:.....	44
3.15.4 Common defects noted during textile and/or garment inspections include:	44
3.15.5 Remedies of garments defect:	44
3.15.6 Final Inspection:	45
4. CONCLUSION	48

Chapter-I

EXECUTIVE SUMMARY

1.1 EXECUTIVE SUMMARY

We performed our internship on Crescent fashion limited at beximco industrial park. By achieving practical knowledge from the industrial attachment it is possible to apply the theoretical knowledge in the technical field. For any technical education, practical experience is almost equally necessary in association with the theoretical knowledge. The industrial attachment is the most effective process of achieving the practical experiences.

We performed our internship on Crescent fashion limited at Beximco industrial park. which is situated on Sarabo, Kashimpur, Gazipur. The length of our training period during two months. We were joining our training on **October 01, 2018** and it finished on **November 30, 2018**. In a short span the comp any received the recognition as one of the market leaders. In this industry there are several sections such as, Spinning section, weaving section, Garments section, Finishing section. All of this sections help us to improve our knowledge. We are mainly focused on production side at Garments section. There are including cutting, sewing, washing & Finishing.

We also learned about the remedies of these different type Machine, Stitch defect, cutting defect, that use for Garments and also about store management system, Machineries and so on. They use high tech machineries to produce a quality garments product. They also add new machineries to increase their production line.

Chapter-II

INFORMATION ABOUT FACTORY

2.1 Introduction:

Textile technology education is based on industrial ground. Theoretical background is not sufficient so, industrial training is an essential part of study to make a technologist technically sound in this field. Industrial training provides us that opportunity to gather practical knowledge.

Beximco produces Men's, Women's and children's garments in all fashion categories from superior dress shirts to regular formal shirts, casual styled garments with fashion sillhoues and details with prints, embroideries etc and also laces and high detail cut and sew styles.

Knit, Woven, Denim and Non Denims categories are all produced in specialized factories with complicated and detailed styles.

The well qualified industrial engineering in the garment factories control the highly stylized garments which is a unique and special department for garment industry.

The rationale behind the existing structure & future expansion of the textile division is to capture value added at each stage of the Washing process.

2.2 History of Project Development:

Beximco Textiles Ltd. (the "Company") was incorporated in Bangladesh as a Public Limited Company with limited liability on 8 March 1994 and commenced commercial operation in 1995 and also went into the public issue of shares and debentures in the same year. The shares of the Company are listed in the Dhaka and Chittagong Stock Exchanges of Bangladesh.

Beximco Textiles Ltd. is the most modern composite mill in the region. Bextex Ltd. has an installed capacity of 288 high-speed air-jet looms in its weaving section and a high-tech dyeing and finishing section with a capacity of 100,000 yards of finished fabric per day. This company is located at the Beximco Industrial Park.

Beximco Textiles Ltd. has a state of the art composite knit fabric production mill, which serves the growing needs of high-quality knit garments exporters in Bangladesh. The project was set up as a state of the art knit fabric knitting, dyeing and finishing facility. During the year the Company produced and sold high quality of knit fabrics and bringing forth all the latest in hard and soft technologies in knitting, dyeing and finishing of knit fabric.

Beximco Textiles Ltd. also has a cotton and polyester blended yarn-spinning mill, with 122,000 spindles is one of the largest spinning mills of the country. The mill was set up to feed the country's export oriented industries.

Beximco Textiles Ltd. produces specialized finishes of denim cloth for export in finished as well as cloth only form.

2.3 Industrial Mission:

BEXTEX Ltd. is a full service vendor with strong vertically integrated production facilities as well as creative & analytical capabilities which clearly sets us apart from most other South Asian vendors.

2.4 Industrial Vision:

- Gain market leadership in high value added apparel in USA & Europe.
- Use “Innovation” & “Speed” as prime drivers, rather than cotton & cheap labour.
- Dominate these markets in high quality:
 - Men's, Women's, Children
 - Shirts (Dress & Casual)
 - Blouses (formal & casual), Skirts, Jackets
 - Jeans & Casual non - denim bottoms
 - Knitted tops & bottoms

2.5 Industrial Commitment to the Environment:

Our company is very committed to preserve a healthy and pollution-free environment. It has a very efficient waste collection and disposal system. In order to reduce air pollution by exhaust of gas from engine-generators, it maintains a costly plant that uses the exhaust gas to generate steam for chilling unit. Above measures not only help keep the water & air free from pollution but also help save cost of water treatment & air conditioning. Your company uses only AZO-free dyes and is dedicated to ensure a healthy and eco-friendly environment.

2.6 General Information about the Factory:

- | | |
|----------------------------------|---|
| 01. Name of factory | : Beximco Industrial Park. |
| 02. Address | : Beximco industrial park, sarabo, kashimpur
Gazipur, Bangladesh
Tel. 02-58611891 |
| 03. Founder and directors | Chairman: A S F Rahman (Sohail Rahman)
Chairman and founder of Beximco Group
Vice Chairman: Salman F Rahman |
| 04. Advisors to the Board | : Shayan F Rahman
: Shahryar Rahman |

05. Key Management

- : Iqbal Ahmed (Group Director)
- : Abu Bakar Siddiqur Rahman (Group Director)
- : Osman Kaiser Chowdhury (Group Director & Chief Executive Officer Power & Engineering)
- : Nazmul Hassan MP (Group Director & Chief Executive)

2.7 Company Profile:

CORPORATE HEADQUARTERS:

17 Dhanmondi R/A, Road No. 2
Dhaka -1205, Bangladesh
Phone: 880-2-8611891-5, 8618220-7
9677701-5, 7701165
E-mail: beximchq@bextex.net
Web Site: www.bextex.net

OPERATIONAL HEADQUARTER:

Beximco Industrial Park, Sarabo
Kashimpur, Gazipur, Bangladesh.

FACTORY: Sarabo, Kashimpur, Gazipur

DATE OF INCORPORATION: 30 May, 1984

COMMERCIAL PRODUCTION: 1990

BUSINESS LINE: Manufacturing and Marketing of Yarn, Woven, knit and Denim Fabrics.

LISTING STATUS: Public Listed Company.

STOCK EXCHANGE LISTING: Dhaka and Chittagong.

AUTHORIZED CAPITAL IN BDT: 3,000 Million Taka

PAID UP CAPITAL IN BDT: 1,882.50 Million Taka

NUMBER OF SHAREHOLDERS: 37,929

NUMBER OF Woven LOOMS INSTALLED: 293

NUMBER OF Spindles INSTALLED: 119,520

NUMBER OF Denim LOOMS INSTALLED: 56

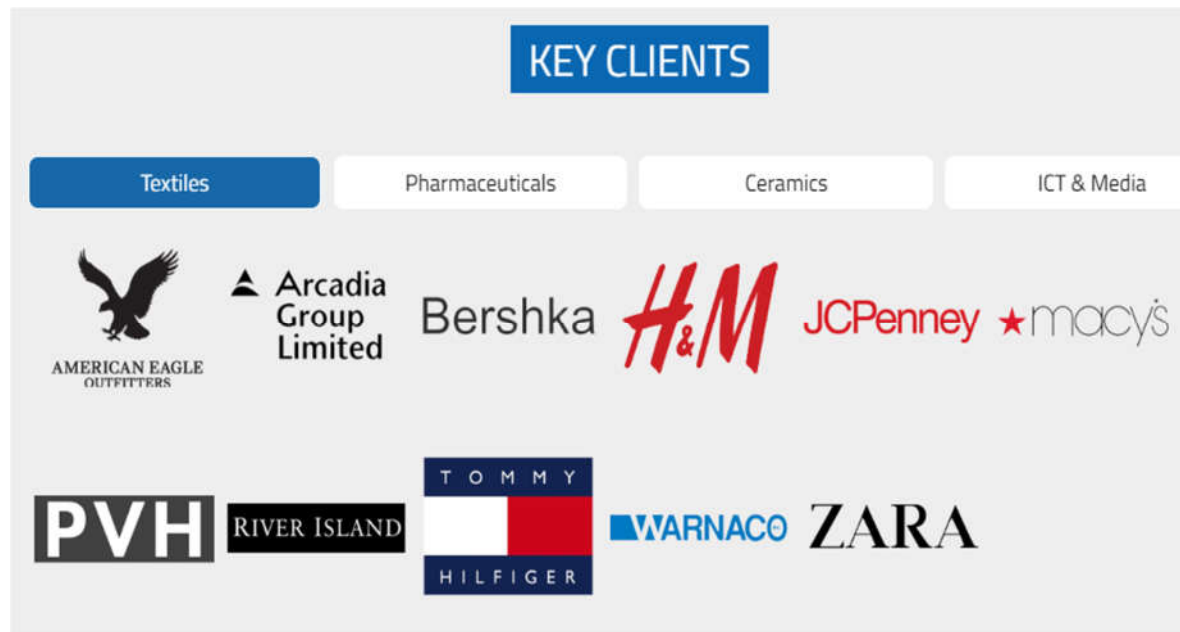
NUMBER OF Circular knit Machine INSTALLED: 30

PRODUCTION CAPACITY: 28 Million Linear Meters

NUMBER OF EMPLOYEES: 5,181

2.8 Major Buyers:

1. Key Clients.



2. Beximco Partners with Major Retailers & International Brands.



SPRINGFIELD

Springfield



DKNY
DONNA KARAN NEW YORK

DKNY



VAN HEUSEN

VAN Heusen



ZARA

Zara



Calvin Klein



JCPenney
Every Day M

J.C. Penny



next

Next



IZOD

IZOD



Arizona



H&M

H & M



GEOFFREY BEENE

Geoffroy Beene



ST. JOHN'S BAY

St. Johns Bay



mothercare

Mother Care



ARROW

Arrow



JF
J. Ferrar

J. Ferrar



Bershka

Bershka



KENNETH COLE NEW YORK

Kenneth Cole Reaction



DECREE

Decree



ESPRIT

ESPIRIT



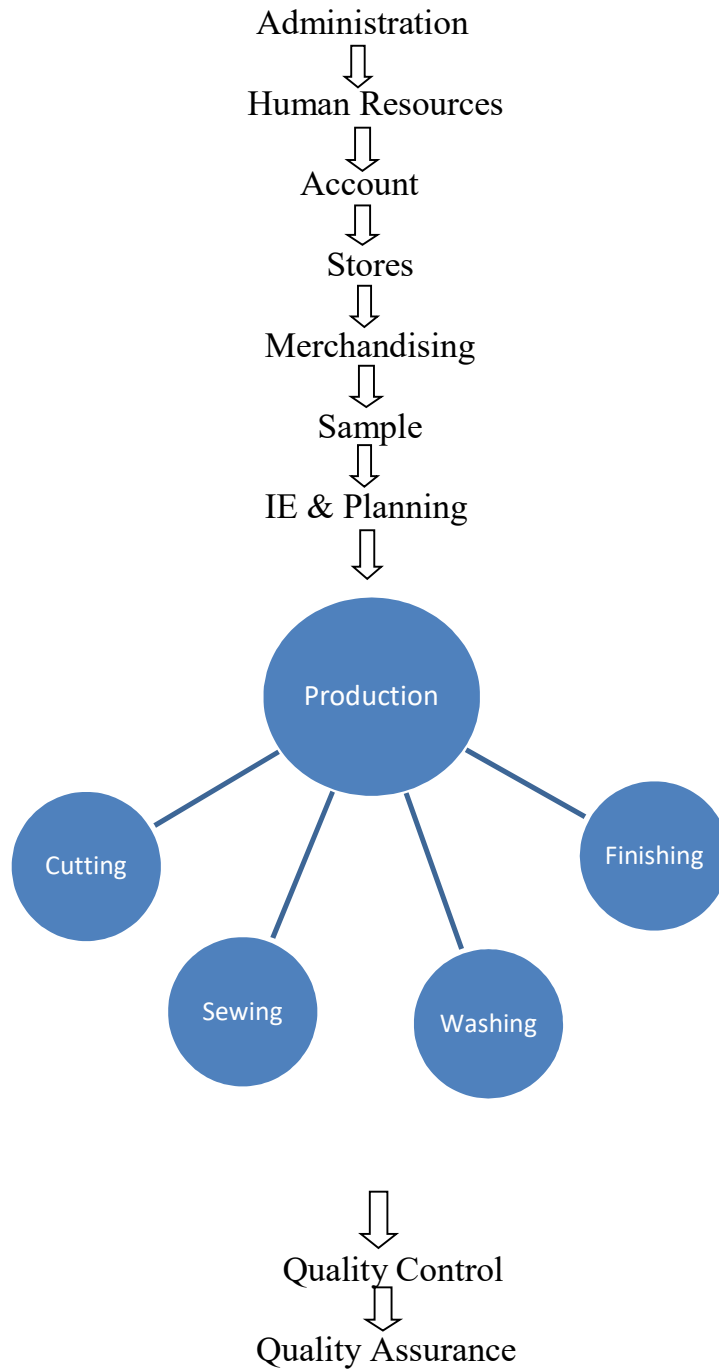
CHAPS

CHAPS



Levis

2.8 Organogram of Beximco Apparel Division:



Chapter-III

DESCRIPTION OF THE ATTACHMENT

3.1 Administration:

Admin section is the part of factory as like as a brain of a human body, which controls each function of its body. The section makes rules and regulations for their company and maintain those properly.

3.2 Human Resource:

This department advertise for recruiting employee. After recruitment they find out the necessity of training for employee. They setup the salary structure of employees according to their quality. They also ensure the better working condition for worker.



3.3 Accounts:

This department maintain all employees' salary & all kind of necessary expenses of the factory need.

Sponsors:

1. World Bank,
M Arubeni
CDC, DEG.
2. Sonali Bank
Local office- Motejheel C/A, Dhaka-1000.
3. City Bank N.A.
Chamber Building,
122-124, Motijheel C/A, Dhaka-1000.
4. State Bank of India,
24-25, Dilkusha C/A, Dhaka.
5. Standard Chatard Bank ,
18-20, Motijheel C/A, Dhaka-1000.

3.4 Store:

This section store all kind of fabric & accessories which are always used in factory like some fabric & accessories

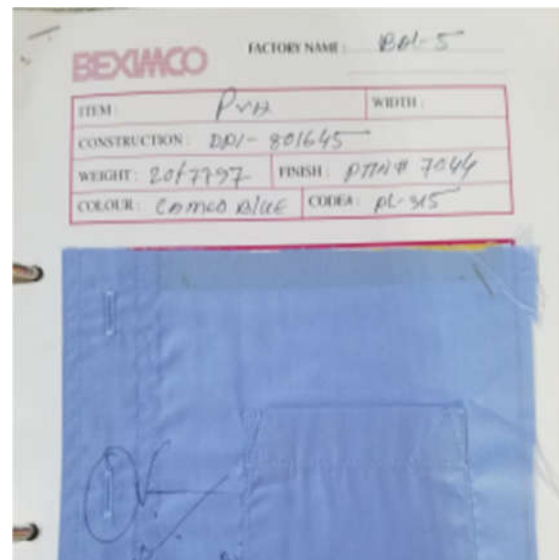


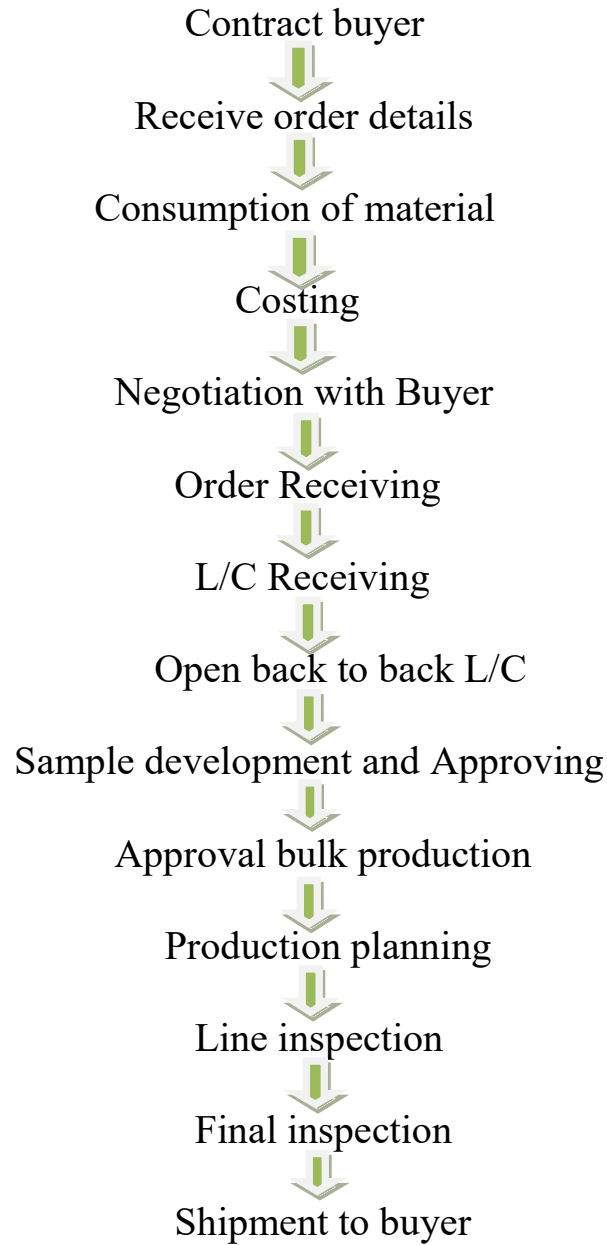


Figure: Trim card. Buyer: Primark. Style: Ladies Shirt

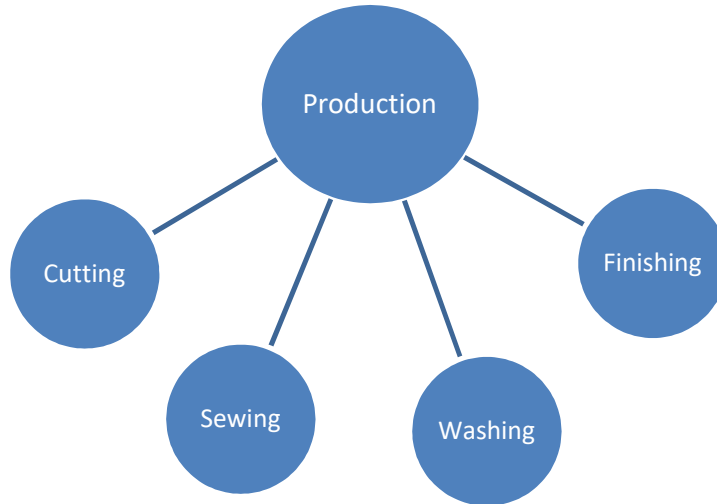
3.5 Merchandising:

This section is a vital section of a garment industry. Because this section makes a relation between company and buyers after all kind of negotiation. They make an agreement with buyers and they go for production.

Flow chart of Merchandising:

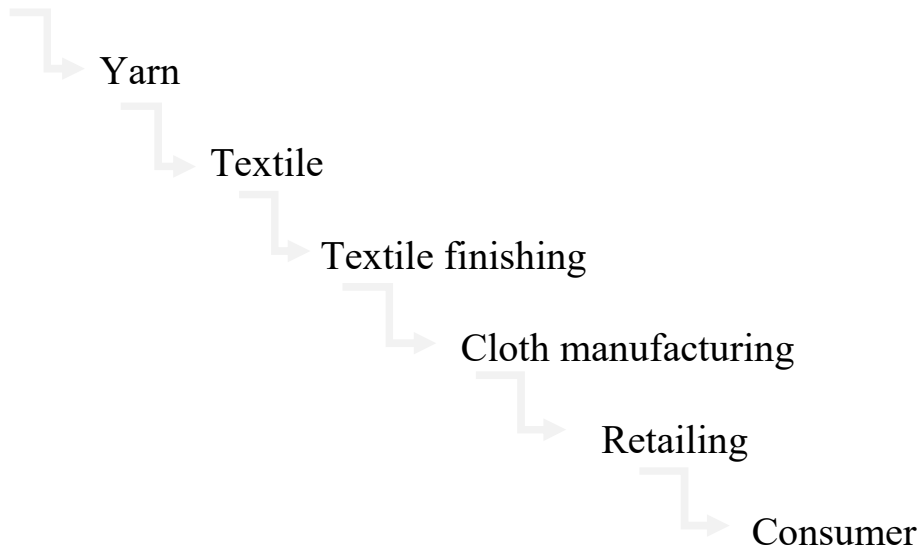


3.6 Production:



3.7 From fiber to consumer:

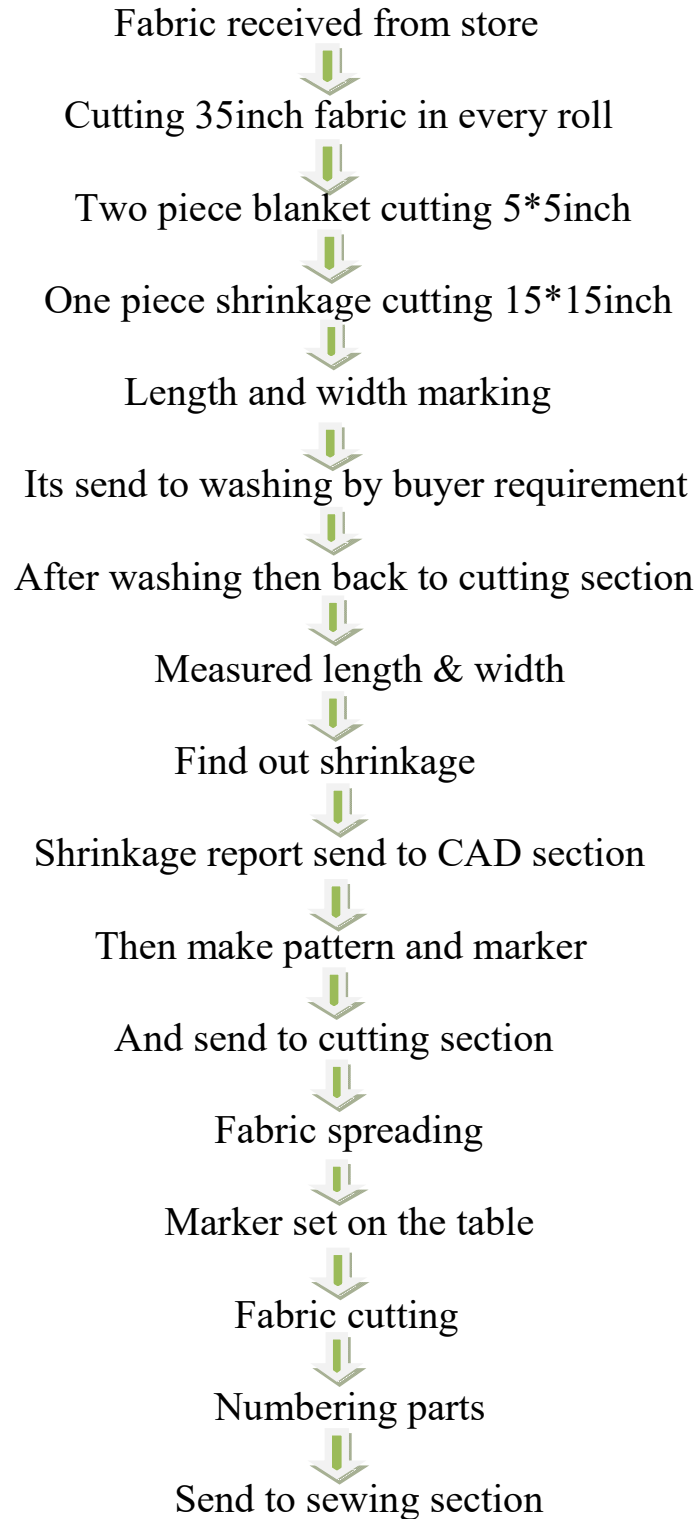
Fibers



3.9 Cutting:

The cutting section receives fabrics from the store. After receiving fabrics they check fabric by inspection machine. They lay fabric on the table by spreader machine and lay the marker paper on the fabric which comes from the layout section. After that they cut the fabric by cutting machine. Then they put number every part by numbering machine.

3.9.1 Cutting sequence:



3.9.2 Fault of fabric in cutting section:

1. Slub
2. Foreign yarn
3. Knot
4. Thick yarn
5. Missing yarn
6. Shading
7. Spot
8. Chain



3.9.3 Cutting machine:

Three type cutting machine are used in industry. Such as

1. Straight knife cutting machine
2. Round knife cutting machine
3. Brand knife cutting machine



3.10 Sewing:

This section gets input from cutting. In this section huge number of operators sewing one garment part by part using various kinds of machines. After completing one garment they send that in to washing section.

3.10.1 Machine of sewing:

1. Lock stitch machine
2. Double thread lock stitch machine
3. Chine stitch machine
4. Double thread chine stitch machine
5. Over lock machine
6. Three thread over lock machine
7. Four thread over lock machine
8. Five thread over lock machine
9. Kansai machine
10. Fed of the arm machine
11. Notcher machine
12. Eye let hole machine
13. Bar tack machine
14. Button hole machine
15. Button attaching machine
16. Multi thread chine stitch machine
17. Smoking machine



3.10.2 Types of needle:

- BDx1: lock stitch vertical m/c
- BDx5: lock stitch double needle, button hole m/c
- DPx17: bar tack m/c
- DCx1: over lock m/c
- UYx128: chain stitch m/c
- QYx113: kansai m/c
- DBx57: smoking m/c
- LWx6T: Bland stitch m/c
- DOx558: Eyelet hole m/c



3.10.3 Making shirt:

- Style No: Tencel shirt dress
- Byer: Primark
- Description: Long sleeve shirt, 2 pocket tencel fab non fuse 2 sleeve tab
- For line
- Total line: 10 line
- Target/hour: 100
- SMV: 25.05
- Helpers: 13
- Operators: 43
- DPI-802658
- Total parts 11 piece. Such as
 1. Back part – 1 piece
 2. Front part - 2 piece
 3. Sleeve – 2 piece
 4. Back Yoke – 2 piece
 5. Collar – 2 piece
 6. Collar band – 2 piece



7. Cuff – 2 piece
8. Pocket – 2 piece
9. Sleeve placket – 2 piece
10. Gamble – 2 piece
11. Sleeve tep - 2 piece

3.10.4 The Measurement Process (Shirt):

Making shirts is a fairly simple and largely automated process. Specially designed machines integrate cutting, assembling, and stitching for the most efficient operations. The most commonly used stitch for shirts are lock stitch & chain stitch. Such as the process

1. Centre back neck to hem:
At the back of the garment, measure ire from the centre of the neckline straight down to the bottom of the hem.
2. Length from side neck point at back:
Measure from the side neck point to the button of the hem.
3. Bust/Chest:
With the garment closed measure across the front of the chest 2.Scm down from the armhole seam.
4. Across front (x-front):
With the garment closed, 14 cm down from side neck point measure across the front between the armhole seams.
5. Across back (x-back):
With the garment closed, 14 cm down from side neck point, measure across the back between the armhole seams.
6. Waist (Tops, Dresses & Jackets)
With the garment relaxed measure straight across the waist seam. Refer to the garment spec for the specified distance down from the under arm, Centre back neck or side neck point.
7. Hem width:
Measure straight across the bottom of the garment hem between the side seams. If the garment has side seam splits, a vent or shirt tail, measure straight across the bottom with the splits or vent closed and garment flat.
8. Across Shoulder:
Measure straight across the back of the garment, shoulder point to shoulder point.
9. Armhole straight:
Measure straight down from the top of the armhole /shoulder (on the natural shoulder position) to the bottom of the armhole.

10. Back Neck Width:

Measure between the shoulder seams, from side neck point to side neck point. If the shoulder seam sits toward the front or back, measure on the natural shoulder crease line. Refer to the spec as to whether to include or exclude trims.

11. Front neck drop (from imaginary line to seam):

Measure straight down the front neck from an imaginary line (FIL) between the side neck points. Measure to the Centre front neck seam. Include neck trims.

12. Back Neck Drop (from imaginary line to seam):

Measure straight down the back neck from an imaginary line (FIL) between the side neck points. Measure to the Centre back neck seam. Include neck trims.

13. Sleeve length from shoulder:

Measure from the shoulder seam along the top edge of the sleeve. Refer to the spec for details whether to exclude or include the cuff or trim.

14. Sleeve Bicep:

Measure bicep 2.5cm down from the armhole straight across the width of the sleeve. Measure at right angles to the fold line. For knitwear, measure the bicep t the widest part down from the armhole.

15. Sleeve Opening:

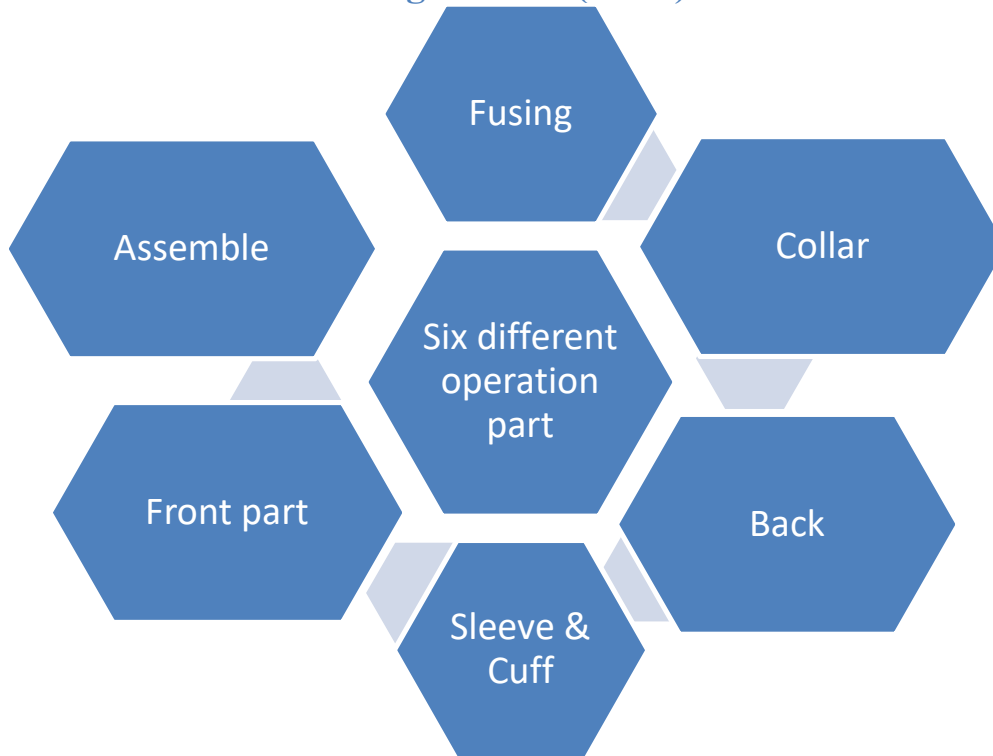
Measure along the finished edge of the sleeve,

16. Cuff Welt depth:

Measure from the cuff opening edge to where the cuff or welt joins the sleeve.



3.10.4 The Manufacturing Process (Shirt):



Fusing:

1. Fuse lining collar, band by using iron
2. Fuse lining cuff by using iron
3. Re fuse by using machine

Collar:

1. Make collar w/pattern by using lock stitch 1 vertical machine
2. Trim & turn collar & press by using turning machine
3. Topstitch collar $\frac{1}{4}$ by using lock 1 stitch machine
4. Iron hem collar band by using iron
5. Attach band to collar w/match by using lock 1 stitch machine
6. Turn & t/s collar band by using lock 1 stitch machine
7. Trim collar bottom edge & mark over lock 3

Back:

1. Sew back plate & tack by using lock 1 stitch machine
2. Attach & topstitch back yoke by using lock 2 stitch machine
3. Attach label to back by using lock 1 stitch machine

Sleeve & Cuff:

1. Sew hem cuff-2 by using lock 1 stitch machine
2. Make cuff by using lock 1 stitch machine vertical
3. Trim & turn cuff& press by using man
4. T/s cuff-2 by using lock 1 stitch machine
5. Attach piping to s/v slit-2 by using lock 1 stitch machine
6. Iron sleeve placket-2 by using man
7. Cut tack & Attach s/v placket w/ edge stc by using lock 1 stitch machine

Front part:

1. Iron front yoke by using iron
2. Attach front yoke with shoulder tack by using lock 1 stitch machine
3. Top stitch front yoke by using lock 1 stitch machine
4. Sew box placket w/lining by using kansai machine
5. Press box placket by using man
6. Sew button placket by using kansai
7. Sew hem pocket-2 by using lock 1 stitch machine
8. Iron front pocket by using iron
9. Mark front pocket placement by using man
10. Attach front pocket w/ dcco stc by using lock 1 stitch machine
11. Attach & top stitch shoulder by using lock 2 stitch machine
12. Tack label w/poly by using lock 1 stitch machine
13. Tack label to side by using lock 1 stitch machine

Assembly:

1. Attach collar to body by using lock 1 stitch machine
2. Close collar by using lock 1 stitch machine
3. Attach s/v to body by using over lock 5 machine
4. T/s arm hole by using lock 1 stitch machine
5. Close side seam by using over lock 5 machine
6. Attach cuff to sly by using lock 1 stitch machine
7. Trim bottom by using over lock 3 machine
8. Sew bottom hem by using lock 1 stitch machine
9. Sew button hole-8 By using button hole machine
10. Attach button-8 by using attach button machine
11. Thread trimming & remove sticker by using man

3.10.5 Operation Bulletin for Tencel shirt

Style No:	TENCEL SHIRT DRESS	Target/Hr:	100
Buyer:	PRIMARK	SMV:	25.05
Description:	Long sleeve shirt, 2 pocket tencel fab non fuse 2sleeve tab	R-SMV:	33.60
		Utilization:	75%

S/N	M/C	Attachment	Operation	SMV	Tar/Hr
			Collar		
1	LS1-V	vertical trimmer	Make collar with match	0.617	97
2	MAN		Trim & Turn Main Collar	0.187	321
3	MAN		Press collar	0.184	326
4	LS1	CR-1/4	T/S main collar +	0.386	155
5	Iron	T/L guide	Iron Hem stand collar *	0.249	241
6	LS1-V	vertical trimmer	Attach band to collar with match	0.619	97
7	LS1	CR-1/16	Turn / Topstitch stand collar *	0.342	175
8	OL3	T/L guide	Trim stand collar bottom edge &	0.314	191
9			CUFF & SLEEVE		
10	Iron	Folder	Iron Hem cuff	0.335	179
11	LS1-V	vertical trimmer	Make cuff	0.528	114
12	MAN		Trim/ turn cuff	0.187	321
13	MAN		Press cuff	0.220	273
14	LS1	folder	Attach piping to slv slit	0.460	130
15	Iron	Table	Iron sleeve placket	0.751	80
16	LS1	CR-1/16	Cut tack & attach placket to sleeve	1.016	59
17	Iron	Table	Iron tab	0.512	117
18	LS1	CR-1/16	Center tack & topstitch tab	0.962	62
19	MAN	Table	Mark tab placement	0.398	151
20	LS1	Reg foot	Attach tab at sleeve	0.700	86
21			Back		
22	LS1	T/L guide	Attach back yoke	0.444	135
23	LS1	T/L guide	Topstitch back yoke	0.372	161
24			Front, pkt		
25	KAN	F-201	Sew box placket	0.52	115
26	LS1	F-201	Fold & stitch button placket	0.333	180
27	LS1	T/L guide	Sew pleat at pocket	0.381	157
28	Iron	Table	Press pleat	0.488	123
29	LS1	Folder	Attach ban at pocket	0.600	100
30	LS1	R-1/16	Edge stitch band	0.300	200
31	MAN	Scissor	Trim excess band	0.300	200
32	Iron	Table	Iron pocket	0.751	80
33	LS1	CR-1/16	Attach pocket at front	0.860	70
34	BT		Bt pocket	0.280	214
35	LS1	Folder	Attach shoulder	0.652	92
36	LS1		Topstitch shoulder	0.410	146
37	LS1	Reg foot	Cut & tack label with poly	0.285	211
38	LS1	T/L guide	Attach label	0.260	231
39			Assembly		
40	LS1	t/l guide	Attach collar to body	0.452	133
41	LS1		Tack label together	0.200	300
42	LS1		Attach label	0.285	211
43	LS1	CR-1/16	Close collar	0.599	100
44	OL5	f 217	Attach sleeve to body	0.685	88
45	LS1		Topstitch armhole	0.620	97
46	OL5	f-242	Close side seam	0.860	70
47	LS1	f-224 (705)	Att. Cuff to sleeve	0.784	77
48	LS1	CR-1/4	Topstitch cuff x 2	0.524	115
49	MAN	Table	Trim Bottom hem	0.285	211
50	LS1	F 503-p 733	Sew bottom hem	0.591	102
51	BH	Gauge	Sew button hole	1.293	46
52	BS	Gauge	Attach button	1.170	51
53	MAN	Cutter	Thread trim & remove sticker &	0.500	120
			SUM	25.05	

3.11 Washing:

This section washing the produce garments as per the buyer requirement. They use different washing methods for different kind of styles.

3.11.1 Type of washing:

Dye wash

Wet wash

Dry Wash	Wet Wash
Tagging	Normal wash
Grinding	Pigment wash
Destroy	Caustic wash
Whickering	Silicon wash
PP spry	Stone wash
Hand cropping	Enzyme wash
Sand blasting	Acid wash
Deep dye	Bleach wash
PP sponging	Tinting and over dyeing

3.11.2 Washing Product:

- Men shirt
- Jacket
- Pants (Jeans & twill)
- Ladies jeans
- Kids Garments
- Denim Pant
- Denim Short Pant
- Women Shirt
- Denim shirt

3.11.3 Mission and Vision:

Mission

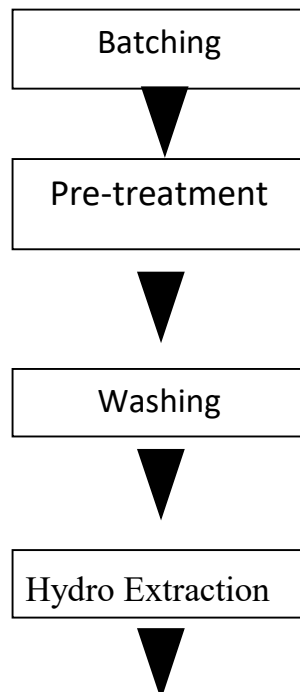
Wield wash is a full service vendor with strong vertically integrated production facilities as well as creative and analytical capabilities which clearly set us apart from most other Bangladesh vendors.

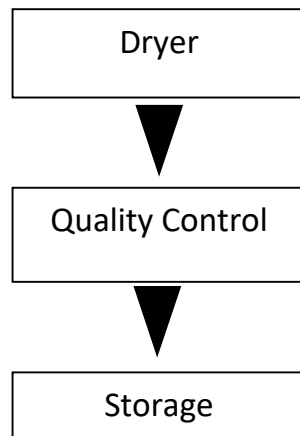
- To focus on customer needs and wants continuously and manufacture high standard quality apparels.
- To establish ourselves as the leading provider of garments by serving international market especially for retailer.
- To strive to meet challenging market needs through a closer working relationship with business partners, innovative manufacturing process and maintaining standard customer service.

Vision

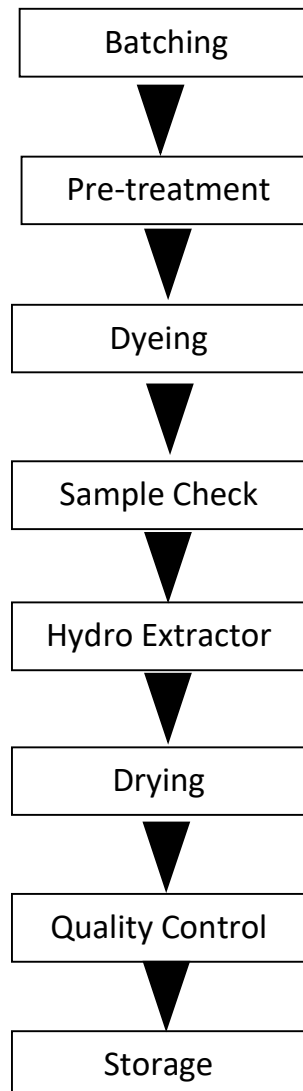
- To build up an organization that runs with a motivation work force, belief in customer satisfaction, posse's good marketing strategy.
- To produce 100% export oriented ready-made garments.
- To be one of the leading composite factory in Asian subcontinent.
- To maximize synergistic benefit and become a market leader through the pursuit of high productivity advanced technological innovation and absolute customer satisfaction by leveraging on the strength of ours core business.

3.11.4 Production Flow Chart of Garments Washing:





3.11.5 Production flow chart of garments dyeing:



3.12 Wet Process Section:

3.12.1 Industrial washing machine

- No of Machines: 1,2,3,4
- Manufacturing Company: **Tonello**
- Model No: **G 510**
- Manufacturing Country: Italy



■ Features:

- Single door, front-loading, open pocket.
- Machine body and essential parts are made of stainless steel.
- Automatic timed Auto reverse, Automatic 5 water level & auto digital temperature control.

- Electric solenoid water & steam valves.
- Non- clog motorized drain valve.
- Full electric protection.

■ Specifications:

- Capacity : 280 kg (1:10)
- Inner cylinder : 1750 mm dial X 1180mm
- Wash motor : 7.5 KW
- Extract speed :130 RPM
- Main door opening : 1000 mm dial
- Inspection door Opening : 300mm dial
- Water Connection Consumption : 50 mm dial,960 liters.
- Drain : 115 mm dial , 2 way out
- Steam Connection Consumption : 25 mm dial, 200kg/hr.
- Overall dimension: 1950mm(W) X 2500mm(D) X 2100mm(H)

3.12.2 Hydro Extractors Machine:

- No of Machines: 01
- Manufacturing Company: PANYU XIN XIN.
- Manufacturing country: China.

■ Features:

- Full stainless steel outer drum and inner basket, strong welded construction. Basket can be dismantled without dismantling outer casing. Electrically interlocked top lid stops the machine when opened. Three position drain connection. Outer casing mounted on heavy galvanized plate base frame. Long rust free life and strength.
- Direct drive. Basket is directly mounted on to a specially designed high torque heavy-duty motor resting on spigot of the base frame with built-in rubber buffer cushion for self- balancing. No v- belts, no speed loss, quick self- balancing. Noiseless & vibration less operation.

- Automatic timed. Automatic DC injection for braking. Safety device against single phasing reverse phasing & motor overload. Great convenience & safety. No foot pedals, no levers, no brake liners, no maintenance.



■ Specifications:

- Model no : HX 50
- Capacity : 80 Kg
- Inner cylinder : 1000 mm dial X 300mm
- Volume : 235 Liters
- Basket speed : 750 RPM
- Water motor : 7.5 KW
- Drain : 75 mm dial
- Overall dimension: 1250mm(W) X 1550mm(D) X 1150mm(H)

3.12.3 Machine description of Dryer Section:

- No. of Machines : 1,2,3
- Model No : LDS200
- Manufacturing Company : SUT LICK.



■ Features:

- Stainless steel inner cylinder and large S.S. loading-unloading door. Outer body painted.
- Low spin extract. Vibration less during extraction. Low spin extract makes articles lighter to unload.
- Automatic times. Full electrical protection against single phasing & motor overload. Operator's convenience & machine safety. Efficient cleaning.

■ Specifications:

- | | |
|------------------------|--------------------------------------|
| • Capacity | : 35 Kg |
| • Basket size | : 950 mm (dail) x 500 mm |
| • Volume | : 350 Litres |
| • Dry clean motor | : 0.75KW |
| • Extract speed | : 200 rpm |
| • Loading door opening | : 500 mm (dail) |
| • Overall dimensions | : 1300 mm (W) x 1250 (D)x 2000mm (H) |

3.13 Dry Process Section:

3.13.1 Industrial sand-blasting guns:

- No. of machines :
- Manufacturing company : Made in China

■ Features:

- Single door design for general washing, sample washing.
- Machine body and essential parts are made of stainless steel.
- Preset front and backward rotation.

■ Specifications:

- Model : TM-JM-2002
- Capacity : 90-100 Pcs/hrs
- Dimension : 800mmx1000mmx1250mm
- Sand contains: 50kg

3.13.2 Industrial Hand Sanding Machines:

- No. of machines : 28
- Manufacturing company : CONCORD
- Manufacturing Country : Turkey

■ Features:

- It has two legs to put on the garments.
- Machine body and essential parts are made of stainless steel.
- Preset front and backward rotation.

■ Specifications:

- Model : CHR-0441
- Capacity : 90-100 Pcs/hrs

3.13.3 Whickering:

Whiskers are one of the most important design of a used look garment. The idea of whiskers is taken from the worn out lines and impression patterns generated by natural wearing on hips and front thigh area. On old jeans, a number of patterns can be finding consequential to fabric, body shape of user or sitting posture. It is also known as Cat's Whisker

3.13.4 Hand scraping:

Hand sand is step which is generally being done in rigid form of garments to get distress look. Locations can be front thigh & back seat or it can be overall / global application as per Standard. Emery paper is being used to scrape the garments in particular placement & design. Emery paper comes in different number generally starts from 40 till 600 and above, higher the number finer the emery paper, lower the coarseness of the paper. In garment industry from 220, 320 & 400 number papers are most popular & widely used. Purpose of doing this process is make used worn out look to the garments.

The most important factor is to select right number of paper according to the fabric strength & intensity need. Feathering / merging white sanded part to dark blue area in such way that it should look natural & not artificial.

Scraping can be done on inflated rubber balloons for better effect (horizontal or vertical it's up to operator's convenience), even it can done plain wooden board of garment size & hand pressure should be uniform in order to get better results.

Hand sanding must be started from intense part & feathering out on less intense part gradually.



One garment must be done by one operator only to have balance intensity on both the legs.

3.13.5 Wrinkle process:

There are two types of wrinkle process.

1. Overall wrinkle process.
2. Permanent wrinkle process.



Overall Wrinkle Process:

- Generally overall wrinkle is done on garments after all types of wet process & dry process.
- Overall wrinkle is done on the garment made from all types of fabrics like, Denim, Twill, Canvas, Poplin, Corduroy, Knit, Polyester, Viscose & Nylon etc.
- Now tie the whole garment in tight position by thread.
- For overall wrinkle, we are used resin in washing machine with water and run tied garments for 5 to 10 minutes at 50°C temperature.
- Then unload the garments from washing machine to trolley for hydro extractor to remove the excess water.
- Open the tie or cut the thread.
- Now hanger the garments into the hanger trolley. Trolley capacity appreciates 80-100 pcs garments.
- Then trolley with resin treatment garments put inside the Industrial oven.

- Set temperature 140°C to 160°C, Time 50-70 minutes.
- Start the machine.
- When setting time is over, machines are automatically off.
- After heating time over garments with hanger will stay 10 minutes for cold in oven.
- Now open the door and trolley with garments out from oven and go to quality section,
- Checking & delivery.



3-D Wrinkle

Permanent Wrinkle Process:

- Generally permanent wrinkle is done on garments after all types of **wet process** wash in dry position.
- Permanent wrinkle is done on the garments made from all types of fabrics like, Denim, Twill, Canvas, Poplin, Corduroy, Knit & Polyester etc.
- For permanent wrinkle we use resin which is sprayed on garments particular/specific Area by nozzle.
- Resin is diluted with water which is recommended by chemical supplier, generally 20% resin & 80% water.
- After resin spray on respective area, then fold by buyer demand and clip attached upon the folding area.
- Now hang the garment in to the hanger trolley, Trolley capacity approx. 80-100 pcs garments.
- Then trolley with resin treatment garments put inside the Industrial oven.
- Set temperature 140°C to 160°C, Time 20-40 minutes (if folding layer is less,
- Less time required, if folding Layer is more, more time is required).
- Start the machine.
- When setting time is over, machines are automatically off.

- After heating time over garments with hanger will stay 10 minutes for cold in oven.
- Now open the door and trolley with garment out from oven.

3.13.6 Tagging:

Tacking or more commonly tag pinning is a very in fashion style in denim garment in these days. Usually tag pin machines are used to attach tag pins to garment. The procedure is very simple and proceeds as, garment is folded on required area and tacked through folds. Garment is folded on specified areas and the fold is locked by tag pins. Now the garment is processed in washer and a permanent fold appears after removal of tag pin. This is important that tag pin is removed when the garment is dried completely. The inner of the fold is dark in shade due to less exposure to mechanical rubbing and chemicals.

3.13.7 Tacking & Grinding:

Tacking is a process which is being done by swift tag machine with the help of plastic or nylon tag pins in rigid form of garment to get very heavy contrast(rigid & washed) on waistband, bottom hems, back pocket & front pocket corners etc.. After completing wash cycle, it must be removed from garment before making softening.

Grinding: is being done on pocket edges & bottom hems edges by running against abrasion surface or stone to achieve worn out effect. Many different make of machines & pen grinding tools are available in the market which runs with pneumatic system.

3.13.8 Destroy effect:

One of the most popular distressing effects currently, 'Destruction' is an art which make denim look unique & used. To make destruction pen type of stone tools being used in mid of wash process to apply on desired area. It can also be achieved by cutting it thru knife the warp yarns & keep the weft yarn as is to show white thread. Holes also can be made by cutting weft & warp yarns. These are all manual processes & every garment will look unique & different than others.



Fig: Destroy

3.13.9 Potassium Permanganate Sponging/ Brushing:

PP Spray is being done on denim garments to achieve local abraded area to appear whiter than back ground indigo color shade. This can be applied by sponges dipped in to PP Solution & rubbed on desired area followed by neutralization in wet process. This process can be done in rigid after doing hand scrape or in the middle of the wash. Doing after enzyme or bleach cycle will give more natural & white effect that doing in rigid. There are many additives can be added in order to achieve desired intensity and look.

In usual, it is done with regular paint brushes or the brushes are modified by cutting hairs in different shapes to produce new styles. Rather towels, sponges, straw bunches or other objects are also used to create effects. What it is seen, is that most merging and beautiful effects are created with towel. Towel dipped in solution are drawn over the garment very lightly. This produces random effect and looks great with dark washes in contrast.

This process is very complicated & needs highly skilled operators to execute it followed by immediate neutralization.

3.14 Chemical Section:

Different sections of the industry require raw materials i.e. chemicals of various types in different quantity. Most of the chemicals are purchased locally. A few are imported directly.

3.14.1 Raw Materials Used In Garments Washing:

■ Caustic Soda (NaOH):-

- Type : Alkali
- Source : Bangladesh
- Uses : Neutralize acidic materials
- Glycerides (waxes and oils), solubilize silicate.

■ Soda Ash (Na_2CO_3):-

- Type : Alkali
- Source : China
- Uses : Used to alkaline the solution/medium. Control P^{H}
- Monthly requirements : 1000 kg (approximately)

■ Wetting agent:-

- Type : Combination of Detergent of Surfactant
- Source : Bangladesh
- Use : Emulsify oils, fats and waxes; remove oil-stains; suspend Materials after they have been removed. Reduce surface tension & minimize inter facial tensions.
- Monthly requirements: 1000 kg (approximately)

■ Anti-back:-

- Type : Anti back staining agent
- Source : India China
- Uses : Prevent back staining
- Monthly requirements : 1500 kg (approximately)

■ Acetic Acid:-

- Type : Organic acid
- Source : Korea
- Uses : used to make solution/medium acidic. Control p^H
- Monthly requirements: 500 kg (approximately)

■ Sodium Hypo Chloride (NaOCl):-

- Type : Oxidizing agent
- Source : India, China
- Uses : Used to inform lightening of the color of the Indigo or sulphur dyed garments in bleach wash.
- Monthly requirements: 500 kg (approximately)

■ Bleaching Power [CA (OCI) CI]:-

- Type : Oxidizing agent
- Source : India
- Uses : Used to discoloration of fabric
- Monthly requirements: 2000 kg (KCI), 142 (Japan) (approximately).

■ Enzyme:-

- Type : Enzyme
- Source : China
- Uses : Used to breaks down the long starch molecular
:Chain into smaller sections that can be easily washed

from the garments.

- Monthly requirements :800kg (liquid), 400 kg (powder) (approximately)

■ **Pumice Stone:-**

- Type : Washing stone
- Source : Thailand/Turkey/China
- Uses : It is used to have an abrasion/irregular-fading
- Effect of stone on garment.
- Monthly requirements : 100 bags (approximately)

■ **Silicon:-**

- Type : Softener
- Source : Korea
- Uses : Creates the fabric surface oily/used for Lubrication.
- Monthly requirements: 500 kg (approximately)

■ **Softener Flax:-**

- Type : Softener
- Source : Korea
- Uses : Soften fabric handling.
- Monthly requirements :500 kg (approximately)

■ **Potassium Permanganate:-**

- Type : Discoloration agent
- Source : India, Bangladesh
- Uses : Used to de-coloration of fabric
- Monthly requirements: Locally purchased when required.

■ **Sodium Meta bi Sulphate:-**

- Type : De-chlorination agent
- Source : China

- Uses : Used to neutralize activity of chlorine on Fabric/solution.
- Monthly requirements: 200 kg (approximately).

■ **Peroxide (H₂O₂):-**

- Type : Oxidizing agent
- Source : Korea
- Uses : OH ions destroy the coloring material and Improve whiteness.
- Monthly requirements: 400 kg (approximately).

■ **Common Salt:-**

- Type : Salt
- Source : Bangladesh
- Uses : Used to electrolyte for solution, improve Shining of fabric.
- Monthly requirements: 1500kg (approximately).

3.14.2 Raw Materials Used in Garments Dyeing:

The following raw materials are used in garments in garments dyeing in addition to some of the raw materials already listed above.

Dyestuff:-

- Type : Direct dye
- Source : China, Switzerland.
- Use : Cotton & Viscose garments dyeing
- Monthly requirements: Depends on ordered quantity.

- **Type** : **Reactive dye**
- **Source** : China, Switzerland.
- **Use** : Cotton & Viscose garments dyeing
- **Monthly requirements** : Depends on ordered quantity.

- **Type** : **Pigment dye**
- **Source** : Switzerland.
- **Use** : Cotton & Viscose garments dyeing
- **Monthly requirements** : Depends on ordered quantity.

■ **Glauber salt:-**

- **Type** : Salt
- **Source** : China.
- **Use** : Levelling agent
- **Monthly requirements** : Depends on ordered quantity.

■ **Fixing Agent:-**

- **Type** : Direct dye
- **Source** : Switzerland.
- **Use** : Color fixation.
- **Monthly requirements** : Depends on ordered quantity.

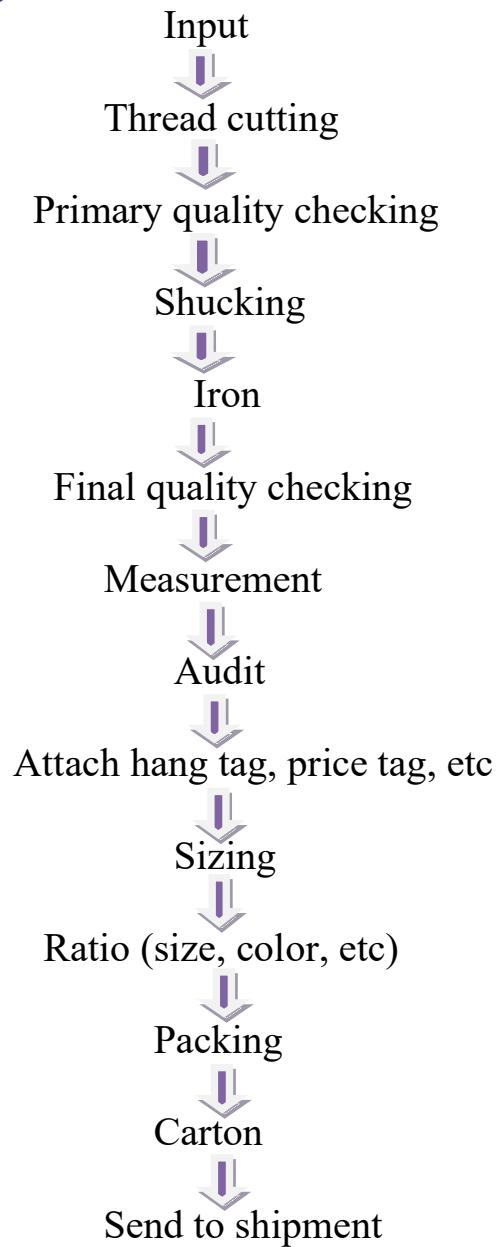
■ **Dispersing agent:-**

- **Source** : Switzerland.
- **Use** : Assists in the process of particle size reduction of dye.
- **Monthly requirements** : Depends on ordered quantity.

3.15 Finishing:

The section receives garments from washing section and trims all kind of access thread from the garments. Then they finally check for any defect and packing the garments for shipment.

3.15.1 Finishing layout:



3.15.3 Garment Defects:

Garment defects is very important issue for the buyers. Generally defects signify lack of quality. During apparel manufacturing process various types of defects occur in garments like faulty zippers, irregular hemming, loose buttons, raw edges, improper button holes, uneven parts, inappropriate trimming, and difference in fabric colors.

3.15.4 Common defects noted during textile and/or garment inspections include:

- Defects in appearance, such as marks, fraying fabric or unfinished edges, etc.
- Defects with seams and stitching, including open seams, incorrect thread selection, skipped stitches, etc.
- Defects concerning color, such as dye spots and color fastness
- Defects concerning fabric, such as its material, fabric weight, cuts or tears, slubs or miss weaves, etc.
- Defects concerning sizing, labeling and packaging, such as labels missing or top/bottom sizes are mismatched
- Defects with polybags over 5"x7" used that are not marked with applicable child suffocation warnings
- Defects concerning care label information, content label information, hang tag descriptions, correctness of components or trims, zip teeth smoothness, etc.
- Defects concerning measurement and fit
- Defects concerning loose snaps
- Defects concerning foul odors from dyes or other chemicals used in the process
- Defects concerning safety, such as pins, needles and staples not being removed

3.15.5 Remedies of garments defect:

- Pattern needs to be correct
- Reduction of feeder number.

- After cutting the garment parts must be kept in proper bundle with number.
 - Better inspection of fabric and cut piece.
 - Use a fabric fault detector.
 - Use of yarn having lower hairiness
 - Operator cleanliness and discipline.
-
- Iron should be regularly checked for dirt/impurities and malfunctions.
 - Sewing thread must be selected properly.
 - Needle-thread-fabric combination should be well judged.
 - Washing parameters should be strictly followed
 - Washing parameters should be strictly followed

When these defects starts to appear at close to 2% or 5 pieces, the production must be informed and the operator must re-trained in the proper usage of the machine

3.15.6 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: 1.Critical 2.Major 3.Minor.

In practice, three types of defects are often distinguished. For most consumer goods, the limits are:

1. 0% for critical defects (totally unacceptable: a user might get harmed, or regulations are not respected).

2. 2.5% for major defects (these products would usually not be considered acceptable by the end user).
3. 4.0% for minor defects (there is some departure from specifications, but most users would not mind it).

These proportions vary in function of the product and its market. Components used in building an airplane are subject to much lower AQL limits.

Note that this tool is used mostly during final outgoing inspections (when the products are ready to be shipped out), and sometimes during production (when the number of products is sufficient to have an idea of the batch's average quality).

AQL Chart for Apparel industry:

Consignment size (total number of pieces available for audit)	Sample size (pcs)	Normal Inspection Acceptable Quality Level (AQL)					
		AQL 1.5		AQL 2.5		AQL 4.0	
		<i>Accept</i>	<i>Reject</i>	<i>Accept</i>	<i>Reject</i>	<i>Accept</i>	<i>Reject</i>
51–90	13	0	1	1	2	1	2
91–150	20	1	2	1	2	2	3
151–280	32	1	2	2	3	3	4
281–500	50	2	3	3	4	5	6
501–1,200	80	3	4	5	6	7	8
1,201–3,200	125	5	6	7	8	10	11
3,201–10,000	200	7	8	10	11	14	15
10,001–35,000	315	10	11	14	15	21	22
35,001–150,000	500	14	15	21	22	21	22

Figure: AQL Chart

CONCLUSION

4. CONCLUSION

At the end of our industrial training, we had realized that it was so helpful for our future and present life basically to our job career. In this whole industrial work we came to know that how parameter changes due to garments sector. It is completely a new experience about garments sector. We visited Cutting section, sewing section, washing section, finishing section, store and many other faults. We really have worked hard to complete this project well ahead. We learned about how to fulfill buyers requirement and gathered more knowledge about the environment of an industry and the working steps of different situation for a different buyer. We also learned here how to control the workers and manage them.

We think, there are lots of difference between the knowledge of university and the industry because industry is based on practical knowledge. On the other hand university is prepared of a student to give the theoretical knowledge. When two knowledge comes in one platform I will think that is full of the knowledge which we learn. So, industrial training is helping us to fulfill our knowledge.

We especially thanks to our honorable supervisor teacher Mousumi Rahaman Hashi who helps to us for facing any problem which we were not understood on the industry. We prepare our industrial report in according to the instruction of our supervisor and input the information to our training industry.